

UPSC MONTHLY CURRENT AFFAIRS

EDITION : JULY 2022

James Webb Telescope

Giant Strides in Astronomy



Depreciation of the Indian Rupee

Causes and
concerns



High Case Pendency in India

Need for
time-bound justice



I2U2

West Asian Quad



Central Armed Police Force

Defending the
National Interest
against imminent
threats

Outstanding performance by BYJU'S students in IAS 2021

Congratulations to our toppers

03

Ranks in
Top 10

12

Ranks in
Top 25

25

Ranks in
Top 50



RANK 01

Shruti Sharma



RANK 5

Utkarsh Dwivedi



RANK 6

Yaksh Chaudhary



RANK 12

Yasharth Shekhar



RANK 13

Priyamvada
Mhaddalkar



RANK 14

Abhinav Jain



RANK 15

Challapalle
Yaswanthkumarreddy



RANK 16

Anshu Priya



RANK 19

Diksha Joshi



RANK 20

Arpit Chauhan



RANK 21

Dilip Kainikkara



RANK 25

Shruti Rajiakshmi



RANK 29

Bhavishya



RANK 31

Avinash V



RANK 33

Jaspinder Singh



RANK 35

Kartikeya Jaiswal



RANK 37

V Sanjana Simha



RANK 40

Kushal Jain



RANK 44

Anjali Shrotriya



RANK 47

Naman Kumar
Singla



RANK 50

Abhijit Ray

Outstanding performance by BYJU'S students in IAS 2020

Congratulations to our toppers

02

Ranks in
Top 10

18

Ranks in
Top 50

36

Ranks in
Top 100



RANK 02

Jagrati Awasthi



RANK 8

Kartik Jivani



RANK 13

Gaurav Budania



RANK 14

Karishma Nair



RANK 17

Sarthak Agarwal



RANK 25

Vaibhav Rawat



RANK 26

Pulkit Singh



RANK 28

Divya Mishra



RANK 30

Divyanshu
Choudhary



RANK 31

Megha Swaroop



RANK 32

Rallapalli Jagat Sai



RANK 35

Aparna Ramesh



RANK 37

Narwade Vinayak



RANK 38

Varuna Agarwal



RANK 41

Aswathy Jiji



RANK 42

Pooja Gupta



RANK 46

Jubin Mohapatra



RANK 50

Abhishek Shukla

Incredible Results

CSE 2019

4 Ranks
in top 10

13 Ranks
in top 50

22 Ranks
in top 100



Rank 3
Pratibha Verma



Rank 6
Vishakha Yadav



Rank 8
Abhishek Saraf



Rank 10
Sanjita Mohapatra

CSE 2018

11 Ranks
in top 50

28 Ranks
in top 100

183 Ranks
in the final list



Rank 11
Pujya Priyadarshni



Rank 16
Dhodmise Trupti Ankush



Rank 21
Rahul Jain



Rank 24
Anuraj Jain



Rank 31
Mainak Ghosh

CSE 2017

5 Ranks
in top 50

34 Ranks
in top 100

236 Ranks
in the final list



Rank 3
Sachin Gupta



Rank 6
Koya Sree Harsha



Rank 8
Anubhav Singh



Rank 9
Soumya Sharma



Rank 10
Abhishek Surana

CSE 2016

8 Ranks
in top 50

18 Ranks
in top 100

215 Ranks
in the final list



Rank 2
Anmol Sher Singh Bedi



Rank 5
Abhilash Mishra



Rank 12
Tejaswi Rana



Rank 30
Prabhash Kumar



Rank 32
Avdesh Meena

CSE 2015

5 Ranks
in top 50

14 Ranks
in top 100

162 Ranks
in the final list



Rank 20
Vipin Garg



Rank 24
Khumanthem Diana Devi



Rank 25
Chandra Mohan Garg



Rank 27
Pulkit Garg



Rank 47
Anshul Agarwal

CSE 2014

6 Ranks
in top 50

12 Ranks
in top 100

83 Ranks
overall selections



Rank 4
Vandana Rao



Rank 5
Suharsha Bhagat



Rank 16
Ananya Das



Rank 23
Anil Dhameliya



Rank 28
Kushaal Yadav



Rank 39
Vivekanand T.S.

TABLE OF CONTENTS

1. POLITY

- High case pendency in India 01
- Office of President 02
- Preserving democracy in India 05
- Inner-party democracy 06
- The poor state of India's fiscal federalism 07
- Supreme Court ruling on abortion 08
- Reforming bail law 08
- Twitter's petition on Section 69A of the IT Act 09
- Antarctica Bill 11

2. ECONOMY

- Depreciation of the Indian rupee 13
- Outflow of FPIs from India 15
- India's investment-led revival 16
- Gross Domestic Product 17
- Five years of GST 18
- Controversy over GST levies on food 19
- Dragon Fruit 19
- Ranking of States' Exercise 2021 20
- National Apprenticeship Promotion Scheme (NAPS) 20
- Taranga Hill – Ambaji Abu Road Rail Line 20
- Settling international trade in rupees 21
- Innovation Index 22

3. INTERNATIONAL RELATIONS

- India-Vietnam ties 26
- India- South Korea relations 27
- Strains on India-Russia defence cooperation 27
- The perils of multilateralism 29
- Status of China's Belt and Road Initiative in South Asia 30
- Aftermath of the Russia-Ukraine conflict 31
- Is NATO stronger after Ukraine invasion? 32
- G20 33
- MC12 34
- Biden in West Asia 35

- Shanghai Cooperation Organisation (SCO) 35
- 12U2 Summit 37

4. ART AND CULTURE

- Raja Ravi Varma 39
- Mahuli group of temples 39
- Mayurbhanj's 'ant chutney' 39
- Ashadhi Bij 39

5. SCIENCE AND TECHNOLOGY

- India's patent law safeguards under fire 41
- The search for dark matter 42
- Space sustainability 43
- The private sector boost in India's space industry 44
- New material discovered can convert infrared light to renewable energy 46
- Acharya Prafulla Chandra Ray 46
- James webb telescope observations 46

6. DEFENCE AND INTERNAL SECURITY

- National Investigation Agency 49
- Prevention of Money Laundering Act 50
- Central Armed Police Forces 51
- Operation NARCOS 53

7. ENVIRONMENT AND ECOLOGY

- E-Waste (Management and Handling) rules 54
- Forest landscape restoration 54
- Melting of glaciers 56
- Altering green laws 56
- Forest Conservation Rules 57
- India's climate imperative 58
- Backsliding on climate action 59
- New Ramsar sites 60
- Tiger conservation 60
- Singalila National Park 61
- Khejri trees 62

<ul style="list-style-type: none"> • India's largest floating solar power project commissioned 62 • Pradhan Mantri JI-VAN Yojana 62 • Plastic pollution 63 • Heatwave across Europe and forest fires 64 • India's renewable energy targets and their achievement 66 	<p>15. MISCELLANEOUS</p> <ul style="list-style-type: none"> • Woman mathematician from Ukraine wins Fields Medal 83 • National Emblem 83 • International Day of Cooperatives 83 • Kharchi Puja 84 • Har Ghar Jal 84
<p>8. HEALTH ISSUES</p> <ul style="list-style-type: none"> • Antibiotics development 68 • Revamping India's school health services 69 • Medical and Wellness tourism 70 	<p>16. PRACTICE QUESTIONS 85</p>
<p>9. SOCIAL ISSUES</p> <ul style="list-style-type: none"> • Gender Gap Index 71 • Living conditions of the Scheduled Tribes (STs) 72 • India set to overtake China in population terms 72 	<p>17. ANSWER KEYS 110</p>
<p>10. EDUCATION</p> <ul style="list-style-type: none"> • National Institutional Ranking Framework (NIRF) 74 	<p>18. MAINS PRACTICE QUESTIONS 114</p>
<p>11. GOVERNANCE</p> <ul style="list-style-type: none"> • Protecting whistle blower 75 	
<p>12. DISASTER MANAGEMENT</p> <ul style="list-style-type: none"> • Manipur landslides 76 	
<p>13. GEOGRAPHY</p> <ul style="list-style-type: none"> • Measuring quakes 77 • Snake Island 78 • Polavaram Dam 78 	
<p>14. SOCIAL JUSTICE</p> <ul style="list-style-type: none"> • Disabled people 79 • LGBTQIA++ community 80 • Mission Vatsalya Scheme 81 • State Ranking Index for NFSA 81 • GOAL Programme (Going Online as Leaders) 82 	

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February (05, 06, 12, 13, 19, 20, 26 & 27) + March (05, 06 & 12)	Polity				
March (13, 19, 20, 26 & 27) + April (02, 03, 09, 10, 16 & 17)	Economics	Economics			
April (23, 24 & 30) + May (01, 07, 08, 14, 15, 21, 22 & 28)	Modern History + Post Independent	Modern History + Post Independent	Modern History + Post Independent		
May (29) + June (04, 05, 11, 12, 18, 19, 25 & 26) + July (02 & 03)	Geography	Geography	Geography	Geography	
July (10, 16, 17, 23, 24, 30 & 31) + August (06, 07, 13 & 14)	Ancient India + Medieval India + Art & Culture	Polity	Polity	Polity	Polity
August (20, 21, 27 & 28) + September (03, 04, 10, 11, 17, 18 & 24)	International Relations + World History	International Relations + World History	Economics	Economics	Economics
September (25) + October (01, 02, 08, 09, 15, 16, 22, 23, 29 & 30)	Environment & Ecology + Science & Technology + Disaster Management	Environment & Ecology + Science & Technology + Disaster Management	Environment & Ecology + Science & Technology + Disaster Management	Modern History + Post Independent	Modern History + Post Independent
November (05, 06, 12, 13, 19, 20, 26, 27) + December (03, 04 & 10)	Social Issues & Social Justice + Essay + Compulsory Language Paper	Social Issues & Social Justice + Essay + Compulsory Language Paper	Social Issues & Social Justice + Essay + Compulsory Language Paper	Social Issues & Social Justice + Essay + Compulsory Language Paper	Geography
December (11, 17, 18, 24 & 31) + January '23 (07, 08, 14, 15, 21 & 22)	Ethics + Governance	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT
January '23 (28 & 29) + February '23 (04, 05, 11, 12, 18, 19, 25 & 26) + March '23 (04)	Internal Security + CSAT	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture
March '23 (05, 11, 12, 18, 19, 25 & 26) + April '23 (01, 02, 08 & 09)	Focus Prelims	Focus Prelims	International Relations + World History	International Relations + World History	International Relations + World History
April '23 (15,16,23,29 & 30) + May '23 (06,07,13,14,20 & 21)		Focus Prelims	Focus Prelims	Environment & Ecology + Science & Technology + Disaster Management	Environment & Ecology + Science & Technology + Disaster Management
May '23 (27 & 28) + June '23 (17, 18, 24 & 25) + July (01, 02, 08, 09 & 15)		Ethics + Governance	Ethics + Governance	Ethics + Governance	Ethics + Governance
31st May to 11th June, 2023	PRELIMS 2023	PRELIMS 2023	PRELIMS 2023	PRELIMS 2023	PRELIMS 2023
July '23 (16, 22, 23, 29 & 30) + Aug '23 (05, 06, 12, 13, 19 & 20)					Social Issues & Social Justice + Essay + Compulsory Language Paper
1st September to 30th September, 2023	MAIN 2023	MAIN 2023	MAIN 2023	MAIN 2023	MAIN 2023

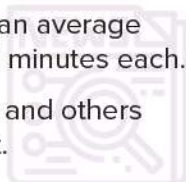


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- Analysis of “**The Hindu**” in a crisp and well-explained format.
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Economy This Week

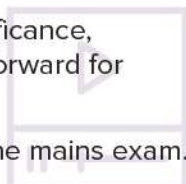
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POLITY

Structure, Organization and Functioning of the Judiciary

1. High case pendency in India

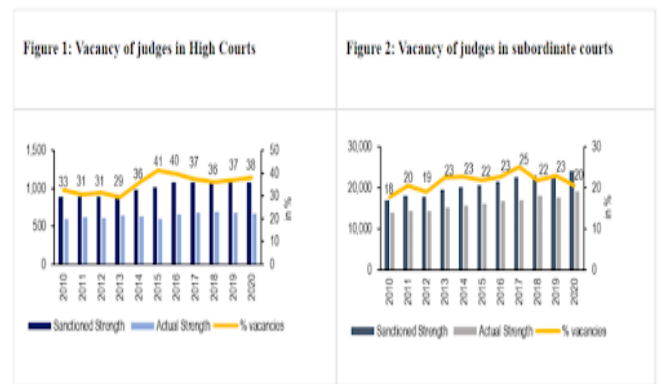
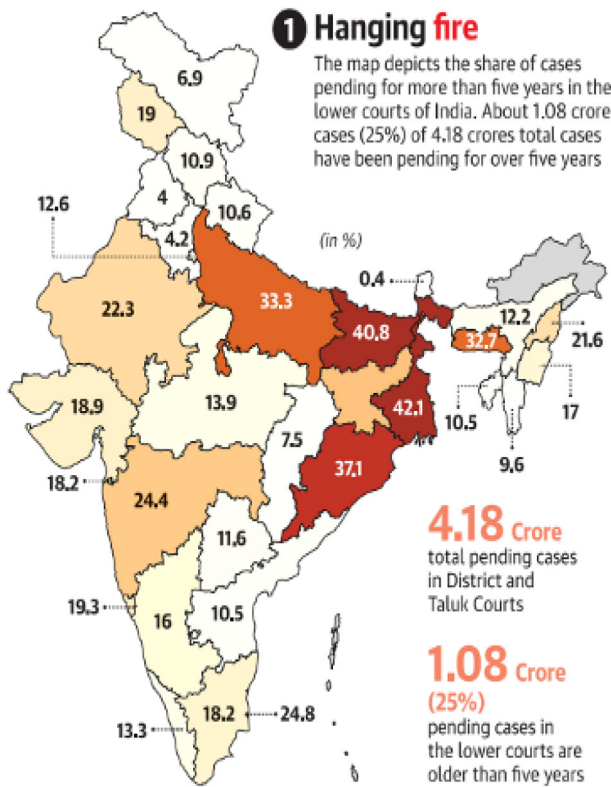
» Mains: Judicial Pendency in India, impacts of high case pendency in the Indian judiciary and key recommendations

Judicial Pendency:

- The judicial pendency refers to all cases which have not yet been disposed of, without any reference to how long the case has spent in the judicial system.

Judicial Pendency in India:

- On an average about 40% of cases are decided after three years in India, while in many other countries, less than 1% of cases are decided after three years.
- The Indian judiciary faces high vacancies across all levels.
 - * These rising vacancies are one of the reasons for the rising number of pending cases and delays.
 - * Vacancies increased from 18% to 21% across all levels of courts between 2010 and 2020.
 - * Around 406 out of the sanctioned 1098 posts are vacant in High Courts.



Impact of high case pendency:

- The high number of under-trials lodged in jails awaiting the hearing of their case is the most visible adverse impact of the high case pendency in India. This increases the burden on the prisons in India.
 - * The Prison Statistics India report released by the National Crime Records Bureau (NCRB) in 2020 said that there were nearly 4,88,511 prison inmates, of whom 76%, or 3,71,848, were undertrials.
 - * Undertrials as a share of total prisoners have peaked at 76% in 2020. As a result, some prisons have become overcrowded

Image Source: The Hindu

- Currently there is a high level of case pendency in the Indian judiciary.
- Over four crore cases are pending in the lower courts (District and Taluk Courts) of India.
 - * About 25% of these pending cases, amounting to one crore cases, have been pending for over five years.

8 Undertrial share

The chart shows the undertrials as a share of the total prisoners. The share of undertrials has increased substantially over the years



- The increasing judicial pendencies violates the right to equality enshrined under Article 14 of the Indian Constitution.
- The increasing number of undertrial prisoners on account of prevailing judicial pendency also violates the principles of “presumption of innocence” which says that an “undertrial is to be considered innocent until proven guilty”.
- Other implications of high judicial pendency include:
 - * High cost of legal fees
 - * Harassment of witnesses
 - * Tampering of evidences
 - * Loss of trust on the justice system

Recommendations:

- Reduce the pendency of cases by filling sanctioned judicial positions, by expediting the process of judicial appointments
- In 2020, the judge-to-population ratio was 21 judges per million population. As per the Law Commission of India’s recommendations, the ratio should be raised to 50 judges per million people. This was reiterated by the Standing Committee on Home Affairs and Supreme Court.
- The e-Committee of the Supreme Court has recommended the following:
 - * Computer algorithms should decide on case listing, case allocation and adjournments with only a 5% override given to judges.
 - * All rational reasons and limits should be put on adjournments. Case listing should give the main weightage to ‘first in, first out’.

- * The courts should focus on e-filing.
- * More virtual hearings must be considered.

- The proposal to create the National Judicial Infrastructure Authority of India through parliamentary legislation is envisaged to bring a revolutionary change in the judicial functioning provided the proposed body is given financial and executive powers.
- Developing a proper policy of investigation to prevent false accusations of individuals is also the need of the hour to reform the judiciary and transform it into a trustworthy one.
- Judicial reforms must be undertaken in a manner that address various aspects of the judicial architecture such as competence, evaluation, management and administration.
- Legal education that is in alignment with the evolving dynamics of the law must be propagated in trial and constitutional courts. This will improve the competence of the judicial system.

Nut Graf

The high level of judiciary pendency will have severe socio-economic consequences on the citizens of the country as judiciary is the first point of contact for the effective functioning of the democracy. Time-bound justice is the need of the hour as “justice delayed is justice denied”.

Structure, organization and functioning of the Executive

2. Office of President

» Mains: Details about the office of President in India

Context:

- Droupadi Murmu was sworn in as the 15th President of India.

Details:

- Droupadi Murmu became the second woman to occupy the country’s highest constitutional post and first to assume the office of the President.
- Droupadi Murmu also is the youngest President of India at the age of 64 years.

President of India:

- The Indian President is the head of the state.
- The president is the first citizen of India and is a symbol of solidarity, unity, and integrity of the nation.
- The President is a part of the Union Executive along with the Vice-President, Prime Minister, Council of Ministers, and Attorney-General of India.
 - * Articles 52 to 78 in Part V of the Constitution deal with the Union executive.

- Once a President is elected, he holds office for five years.

Qualifications for becoming a President in India:

- He should be an Indian Citizen
- His age should be a minimum of 35 years
- He should qualify the conditions to be elected as a member of the Lok Sabha
- He should not hold any office of profit under the central government, state government, or any public authority

Election process of President in India:

- The President of India is elected through an indirect election process consisting of an Electoral College.
- Elections are conducted in accordance with the system of proportional representation by means of the single transferable vote (PRSTV) and the voting takes place through a secret ballot.
- All doubts and disputes arising in connection with the election are enquired into and decided by the Supreme Court of India whose decision is binding.
- The elections are conducted by the Election Commission (EC) of India.
- The electoral college for President's elections consists of elected members from:
 - * Lok Sabha and Rajya Sabha
 - * Legislative Assemblies of the states
 - * Legislative Assemblies of the Union Territories of Delhi and Puducherry
- The value of the vote of MPs remains the same across the States, but the value of the votes of MLAs depends on the population of the State.

Value of the vote of an MLA

$$= \frac{\text{Total population of State}}{\text{Total number of elected}} \times \frac{1}{100}$$

Members in the state Legislative assembly

Value of the vote of an MP =

$$= \frac{\text{Total value of votes of all MLAs of all states}}{\text{Total number of elected members of Parliament}}$$

Oath or Affirmation by the President:

- Before entering upon his office, the President has to make and subscribe to an oath or affirmation.
- The oath of office to the President is administered by the Chief Justice of India and in his absence, the senior-most judge of the Supreme Court available.
- In his oath, the President swears:
 - * To faithfully execute the office
 - * To preserve, protect and defend the Constitution and the law
 - * To devote himself to the service and well-being of the people of India

Powers and functions of the President of India:

Executive Powers of The President

- All executive actions of the Government of India are formally taken in his name.
- The President can make rules specifying the manner in which the orders and other instruments made and executed in their name shall be authenticated.
- The President can make rules for more convenient transactions of business of the Union government, and for allocation of the said business among the ministers.
- The President appoints the Prime Minister and the other ministers. They hold office during the pleasure of the President.
- The President also appoints the Attorney General for India, the Comptroller and Auditor General of India, the Chief Election Commissioner and other Election Commissioners, the chairman and members of the Union Public Service Commission, the Governors of states, the chairman and members of Finance Commission, etc.
- The President can mandate the Prime Minister to submit, for consideration of the council of ministers, any matter on which a decision has been taken by a minister but which has not been considered by the council.

Legislative Powers of The President:

- The President summons or prorogues the Parliament and dissolves the Lok Sabha. President can also summon a joint sitting of both the Houses of Parliament
- The President addresses the Parliament at the commencement of the first session after each general election and the first session of each year.
- The President can appoint any member of the Lok Sabha to preside over its proceedings when the offices of both the Speaker and the Deputy Speaker fall vacant.
- The President nominates 12 members of the Rajya Sabha from amongst persons having special knowledge or practical experience in literature, science, art and social service.

- Prior recommendation of the President is required to introduce certain types of bills in the Parliament.
 - * For example: a bill involving expenditure from the Consolidated Fund of India, or a bill for the alteration of boundaries of states or creation of a new state.
- When a bill is sent to the President after it has been passed by the Parliament, he can:
 - * give his assent to the bill, or withhold his assent to the bill, or return the bill (if it is not a money bill) for reconsideration of the Parliament
 - * However, if the bill is passed again by the Parliament, with or without amendments, the President has to give his assent to the bill.
- When a bill passed by a state legislature is reserved by the governor for consideration of
- the President, the President can: give his assent to the bill, or withhold his assent to the bill, or direct the governor to return the bill (if it is not a money bill) for reconsideration of the state legislature
 - * It should be noted here that it is not obligatory for the President to give his assent even if the bill is again passed by the state legislature and sent again to him for his consideration.
- The President can promulgate ordinances when the Parliament is not in session. These ordinances must be approved by the Parliament within six weeks from its reassembly.
- He lays the reports of the Comptroller and Auditor General, Union Public Service
- Commission, Finance Commission, and others, before the Parliament.

Financial Powers of The President:

- Money bills can be introduced in the Parliament only with prior recommendation of the President
- The President causes to be laid before the Parliament the annual financial statement i.e.; the Union Budget.
- No demand for a grant can be made except on the President's recommendation.
- The President can make advances out of the Contingency Fund of India to meet any unforeseen expenditure.
- The President constitutes a Finance Commission after every five years to recommend the distribution of revenues between the Centre and the states.

Judicial Powers of The President:

- The President appoints the Chief Justice and the judges of Supreme Court and High Courts.
- The President can seek advice from the Supreme Court on any question of law or fact. However, the advice tendered by the Supreme Court is not binding on the President.

- The President can grant pardon, reprieve, respite and remission of punishment, or suspend, remit or commute the sentence of any person convicted of any offence:
 - * In all cases where the punishment or sentence is by a court martial;
 - * In all cases where the punishment or sentence is for an offence against a Union law
 - * In all cases where the sentence is a sentence of death.

Diplomatic & Military Powers of The President:

- All international treaties and agreements are negotiated and concluded on behalf of the President. However, they are subject to the approval of the Parliament.
- The President represents India in international forums and affairs and sends and receives diplomats like ambassadors, high commissioners, and so on.
- The President is the supreme commander of the defence forces of India. In that capacity, he appoints the chiefs of the Army, the Navy and the Air Force.
- The President can declare war or conclude peace, subject to the approval of the Parliament.

Emergency Powers of The President:

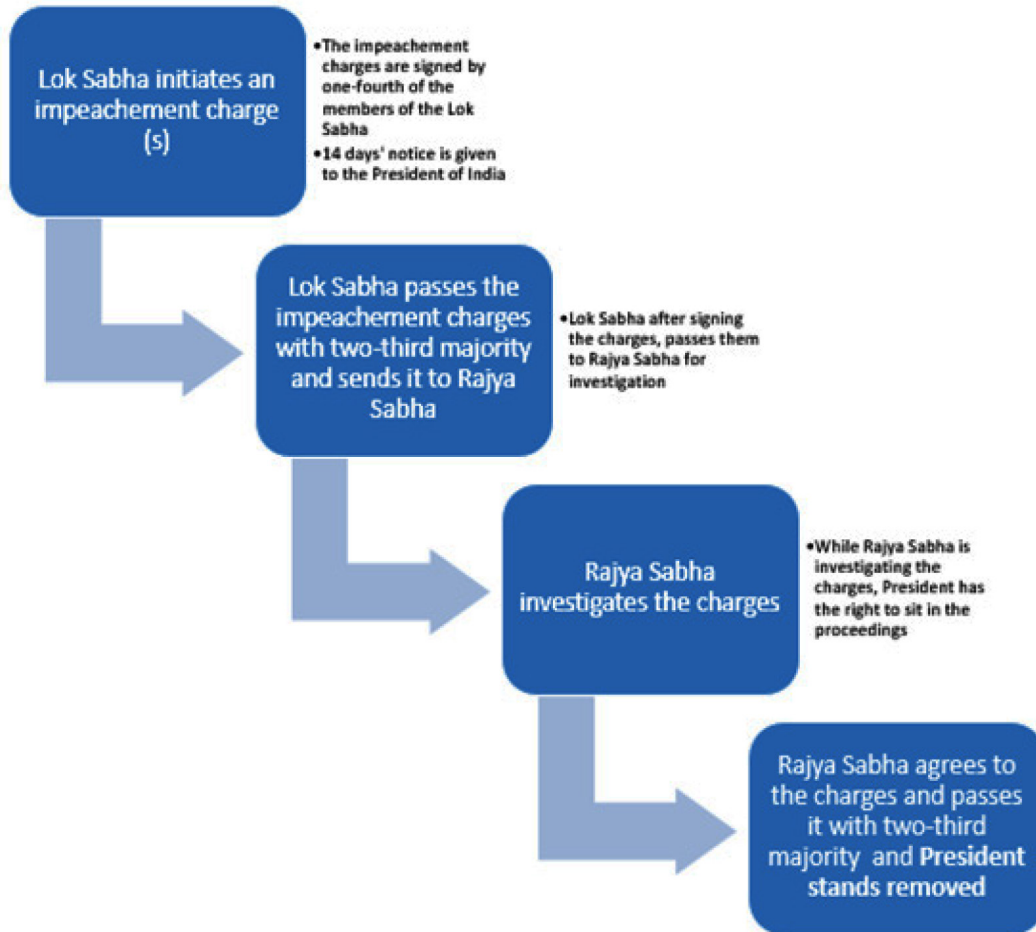
- The Constitution confers extraordinary powers on the President to deal with the following three types of emergencies –
 - * National Emergency (Article 352)
 - * President's Rule (Article 356 & 365)
 - * Financial Emergency (Article 360)

Veto Power of The President:

- The President has the veto power over the bills passed by the Parliament, that is, he can withhold his assent to the bills.
- The object of conferring this power on the President is two-fold
 - * to prevent hasty and ill-considered legislation by the Parliament; and
 - * to prevent legislation which may be unconstitutional.
- The veto power enjoyed by the executive in modern states can be classified into the following four types:
 - * Absolute veto: that is, withholding of assent to the bill passed by the legislature.
 - * Suspensive veto: which can be overridden by the legislature with an ordinary majority.
 - * Pocket veto: that is, taking no action on the bill passed by the legislature.

Removal of President from Office:

- The President can be removed from office before the expiry of the term by the process of impeachment only on the grounds of violation of the constitution
- The Indian Constitution does not define “violation of the constitution”
- The process of removal of the President is given below:



Nut Graf

The office of President is not merely a rubber stamp of the Prime Minister as criticized by certain experts because the President plays a crucial role in safeguarding the rule of law of the country and the liberty of the citizens as he is oath-bound to preserve, protect and defend the Constitution.

Parliament and State Legislatures—Structure, Functioning, Conduct of Business, Powers & Privileges and Issues Arising out of these.

3. Preserving democracy in India

» Mains: Threats to Indian democracy

Background:

- There remain serious concerns with respect to the following developments in the recent past.
 - * Toppling of governments in states such as Madhya Pradesh, Karnataka and Maharashtra through questionable tactics such as the encouragement to defections from the parties in power.

* Selective targeting and arrests of Opposition members.

- The above measures amount to efforts to terminate all opposition to the government and such developments are not in the interest of the country.

Significance of a opposition:

Feature of democracy:

- The presence of a one party-government though brings in stability for the executive, it reduces the scope for diverse views and opinions in the functioning of such a government and this does not augur well for a democracy.
- Democracy is the basic feature of the Constitution.
- Without an effective Opposition, democracy will become dull and hence the presence of an Opposition is necessary for a vibrant democracy.

Feature of parliamentary democracy:

- India has adopted the parliamentary system of government to ensure that there is a responsible executive in India. Such a system provides for the assessment of responsibility of the executive on a daily basis.
- The daily assessment is done by members of Parliament, through questions, resolutions, no-confidence motions, adjournment motions and debates.
- Without an effective Opposition, legislature will become submissive. This can degrade the public trust in the legislature and the Indian democracy in general.

Recommendations:

- The Judiciary should step up to check against any ill motivated moves to stifle opposition in the country.
- The Opposition should also seek to up its credibility by seeking to work constructively with the government rather than merely attacking the government on all issues.

Nut Graf

Given the key role played by opposition in the functioning of a parliamentary democracy like India, any move to stifle opposition must be resisted to ensure that India has a vibrant democracy.

Parliament and State Legislatures— Structure, Functioning, Conduct of Business, Powers & Privileges and Issues Arising out of these.

4. Inner-party democracy

- » Mains: Lack of inner party democracy in India – Factors responsible, concerns and recommendations

Context:

- Boris Johnson has been ousted as leader of the British Conservative Party by the party's MPs. As a result, Boris Johnson had to resign as the Prime Minister. This development shows how much power ordinary MPs have over the Prime Minister in the U.K.
- In this context, the article analyses the system in India.

Comparison with the Indian system:

- Unlike their counterparts in the U.K., MPs in India have no autonomy to question and challenge their party leadership. In fact in India, party MPs' ability to even diverge slightly from the official government line on routine policy matters is also almost non-existent.
- Hence in India, the Prime Minister or party leadership exercises almost absolute authority over the party MPs.

Factors contributing to such a scenario:

Anti-defection law:

- Party MPs diverging from the party view are under the constant threat of being disqualified under the anti-defection law. Hence, they are almost incapable of challenging or even questioning party leadership.

Process of choosing candidates for an election:

- As against the system in the U.K. where MPs do not owe their nomination to the party leader, but are selected by the local constituency party, in India, it is generally the party leadership that decides candidates, with only an informal consultation with the local party. Hence this provides an avenue for the party leadership to exercise control over its nominees.

Concerns:

Lack of inner-party democracy:

- Given that the elected MPs have to toe the party leadership line on all issues, the party leadership exercises absolute control over the elected representatives. This leads to a lack of inner-party democracy.

Undermining of representative democracy in India:

- The representative democracy system in India envisions a system wherein the people's voice is heard through their representatives. Rendering the MPs powerless against the party leadership or the Prime Minister would undermine this vision.

Recommendations:

- There is the need to consider empowering the elected representatives vis-à-vis the Party leadership and the Prime Minister, to ensure their accountability.
- In this direction, the U.K. model wherein MPs can express no confidence in their leadership without the fear of being disqualified under the anti-defection law needs to be considered. This will empower the MPs to question the leadership and ensure their accountability.

- Also, in the long run, control over candidates must shift from central party leaders to local party members. Suitable changes should be brought out in this direction. Such an arrangement would go a long way towards empowering the MPs.

Nut Graf

The anti-defection law and the process of selection of candidates as nominees for election by the party leadership have resulted in a scenario wherein the party leadership exercises absolute control over the elected representatives. This has resulted in a lack of inner-party democracy and undermining of the representative democracy that India aspires to be.

Functions and Responsibilities of the Union and the States, Issues and Challenges Pertaining to the Federal Structure, Devolution of Powers and Finances up to Local Levels and Challenges Therein.

5. The poor state of India's fiscal federalism

- » Mains: Challenges to fiscal federalism in India and associated concerns.

Advent of centralized fiscal policy in India:

- There seems to be the advent of a centralised fiscal policy in India in recent times and the article makes the following arguments to put its point forward.

Implementation of GST system:

- The states have lost their capacity to generate their own revenues due to the implementation of the Goods and Services Tax (GST) regime. The indirect tax right of the state governments has been curtailed due to the implementation of the GST system.
- Also, the ending of the GST compensation regime for States will adversely impact their fiscal independence.

Impact of centrally sponsored schemes:

- There are a high number of centrally sponsored schemes currently being implemented. The number stands at 131 currently. Notably, the states are required to share a part of the cost for the implementation of such schemes. The state governments spend about 25% to 40% as matching grants.
- This amounts to unnecessary intrusion into the expenditure pattern of the states.

Politicisation of the Finance Commission:

- The article laments the politicization of the Finance Commission which is mandated to recommend on the distribution of tax revenues between the Union and the States and amongst the States themselves.
- The article argues that the Finance Commission has become a politicised institution with arbitrariness and inherent bias towards the Union government.

Increasing use of cesses and surcharges and other issues:

- The raising of non-divisive cess and surcharges by the Union government has resulted in the increase of the non-divisive pool in the Centre's gross tax revenues. Currently, this share stands at 15.7% as compared to 9.43% in 2012. The shrinking of this divisible pool of resources for transfers to States will adversely impact the flow of revenues to the states despite the increased share of devolution to states from the previous 32% to the current 42%.
- The recent drastic cut in corporate tax will also have an adverse impact on the divisible pool of revenue with the states.

Differential treatment of states and union government:

- Notably, the states have to pay higher interest rates for market borrowings as compared to the Union government.
- Also, the investment of surplus by the Reserve Bank of India in Union government treasury bills places the union government at an advantage over the state governments.

Concerns:

Depleting fiscal capacity of states:

- While the expenditure of the States has been ever-increasing, the revenue inflow to the states hasn't grown proportionately. As a result, the ability of States to finance current expenditures from their own revenues has declined drastically over the years. They have become dependent on fiscal transfers from the Union government.

Concerns over centrally sponsored schemes:

- The excessive number of centrally sponsored schemes undermines the electorally mandated democratic politics of States. This impedes States from charting their own autonomous path of development.
- The fact that the states are having to share the expenditure of a scheme on the Union list seems to be in violation of the constitutional provisions.
- The centrally sponsored schemes, driven by the one-size-fits-all approach, cannot be much effective as compared to State schemes based on ground realities.

Impact on socio-economic development:

- Notably, the states spend 60% of the expenditure in the country while accounting for higher proportions in critical sectors such as education and health. The state expenditure accounts for 85% in education and 82% in health.
- The decreased financial sources with the states will undercut the expenditure of the state on these crucial sectors and this could have serious consequences for socio-economic development in India. This could lead to the deepening of inequality in India. This, in the words of B.R. Ambedkar, would threaten the very foundations of Indian democracy.

Recommendations:

- There is a need to relook the Centre-State fiscal relations and ensure more transfers and taxation powers for regional governments.

Nut Graf

The increasing pattern of centralization of fiscal policy in India is a major point of concern as it undermines not only the autonomy of the states but also the process of socio-economic development.

Important Supreme Court Judgment**6. Supreme Court ruling on abortion**

- » Prelims: MTP act- Provisions

Context:

- Recently, the Supreme Court of India allowed an unmarried woman to end her pregnancy at 24 weeks.
- The woman's argument to terminate the pregnancy was that her relationship with her partner had changed who had refused to marry her and being unmarried and raising a child carries a stigma in society.
- This Supreme Court judgment came upon an appeal against the Delhi High Court judgment in the same case.

Background:**Delhi High Court's judgment:**

- The Delhi High Court had refused to allow the termination of the pregnancy of the unmarried woman, citing the provisions of the Medical Termination of Pregnancy (MTP) Act. The Court had held that since she was unmarried and since the Medical Termination of Pregnancy Act allowed only married women to terminate the pregnancy after 20 weeks, she would not be eligible to get an abortion.
- Also the Court argued that terminating the pregnancy at this stage would amount to killing the foetus.

Details:

- The Supreme Court, took note of the amendment to the MTP Act in 2021 wherein the word husband was replaced by partner. This the Court interpreted as meaning that the law was not confined to only those in marital relationships.
- The Bench noted that the petitioner cannot be denied the benefit under the MTP act, on the ground that she was unmarried, as this would amount to discrimination.
- As per the MTP Act, all women are allowed to get a medical termination of pregnancy before 20 weeks. But only certain categories of women are allowed to have an abortion between 20 and 24 weeks — survivors of rape, minors, and a married woman whose relationship status has altered during this period.

- The Supreme Court directed the constitution of a medical board to examine the woman (as per the provisions of the MTP Act) to determine if it was safe and not a risk to the life of the mother to terminate the pregnancy. If it is found to be safe, then she could go ahead and have an abortion.

Significance of the judgement:

- The Supreme Court's expansion of the law to include unmarried women as part of the MTP Act has given women in similar circumstances an option now to access healthcare services without having to take the time and resource consuming legal route to the top court every time.

Nut Graf

The Supreme Court's expansion of the law to include unmarried women as part of the MTP Act is in line with the 'object and spirit' of the MTP legislation to facilitate the access to quality healthcare services to those seeking to avail termination of pregnancy.

Indian Constitution - Comparison of the Indian constitutional scheme with that of other countries**7. Reforming bail law**

- » Mains: Major issues involved in Bail procedure and CrPC in India.

Context:

- Recently, the Supreme Court of India urged the Government of India to bring a new law to simplify the process of bail, referring to the Bail Act of the United Kingdom.

What did the Supreme Court Observe?

- A two bench judge observed the "pressing need" to reform bail laws considering the "abysmally low" conviction rate.
- Stating that such detentions reflect an imperialist mindset and create the notion of a "police state", the Supreme court issued directions to courts and investigation agencies to prevent "unnecessary" arrests.
- The Supreme Court of India in Satender Kumar Antil vs CBI laid down fresh guidelines on arrests in order to have strict compliance with the provisions of Section 41 and 41A of the Code of Criminal Procedure, 1973 in addition to the earlier guidelines laid down in the case of Armesh Kumar vs State of Bihar, 2014.

What are Sections 41 and 41A of the Code of Criminal Procedure?

- Section 41 of CrPC provides for the conditions in which an arrest can be made by the police without a warrant.
 - * Reasons for the arrest must be recorded in writing for every non-arrest and arrest under this section.
- Section 41A mandates that a notice be sent by the investigating agencies before making an arrest in certain conditions prescribed by CrPC.

Present Law on Bail in India VS Law in U.K:

- Bail in India is governed by provisions in the Code of Criminal Procedure (CrPC).
- The CrPC does not define the word 'bail' but only classifies offences under the Indian Penal Code as 'bailable' and 'non-bailable'.
 - * Bail is a right in bailable offences under Section 436 and it binds police or court to release the accused once they furnish a bail bond, with or without surety.
 - * The discretion to grant bail for non-bailable offences lies with the court. So, an accused cannot claim bail as a right.
 - » Section 437 sets out the circumstances in which courts can grant bail for non-bailable offences.
- Provision mandates the court to consider granting bail to an accused below 16 years, someone who is sick, or is a woman.

U.K. law on bail:

- Here, the Bail Act of 1976 governs the procedure regarding bail.
- It recognises a "general right" to bail and aims to reduce the number of convicts to prevent overcrowding of jails.
- It says an accused should be granted bail unless there is a justified reason to refuse it.
- Bail can be rejected if the court finds substantial grounds for believing that the defendant will fail to surrender, commit an offence, or interfere with witnesses if released on bail. The court has to give reasons in case it withholds or alters bail conditions.

Constitutional provisions against Unwarranted arrests:

- Article 20: "No person shall be convicted of any offence except for violation of the law in force at the time of the commission of the act charged as an offence, nor be subjected to a penalty greater than that which might have been inflicted under the law in force at the time of the commission of the offence"

- Article 21: Protection of Life and Personal Liberty
 - * Unwarranted arrests are against the Right to Life and Liberty.
- Article 22: provides Protection against Arrest and Detention.

Guidelines issued by Supreme Court on Bail reforms: Way Forward

- The Supreme Court asked the Government of India to pass a new law on bail reforms to facilitate due procedure for arrests and timely disposal of bail pleas.
- As per the guidelines, pleas with respect to bail have to be disposed of within 15 days except when provisions mandate otherwise.
- Appeal for Anticipatory bail has to be decided within six weeks.
- Accused can be granted bail on the court's own discretion in certain circumstances bypassing formal bail application procedures.
- It rules that non-compliance of Investigating agencies and officers with Sections 41 (empowers police to arrest without a warrant) and Section 41A (deals with the procedure for appearance before police) of the CrPC at the time of arrest will entitle the accused to bail.
- The apex court also directed State Governments and Union Territories to facilitate standing orders for the procedure to be followed under Sections 41 and 41A to avoid unwarranted arrests.
- It directed high courts to identify undertrials who are unable to comply with bail conditions and take action to facilitate their release

Nut graf:

A comprehensive change should be made with the criminal laws in India in consultation with all stakeholders to provide affordable and speedy justice to all, and create a people centric legal structure.

Constitution of India — features and significant provisions**8. Twitter's petition on Section 69A of the IT Act**

- » Prelims: Section 69 (A) of the Information Technology Act, 2000
- » Mains: Implementation of the provisions of Section 69 (A) of the IT Act and various issues associated with it

Context:

- Twitter has started legal proceedings in the Karnataka High Court against the Central Government's orders of taking down some of the content posted on Twitter.

Background:

- Between February 2021 and 2022, the Ministry of Electronics and Information Technology (MeitY) has reportedly ordered Twitter to take down about 1,400 accounts and 175 tweets under Section 69 (A) of the Information Technology Act, 2000 (IT Act)
- Twitter has been negotiating with the ministry to reconsider some of the blocking orders. However, the Ministry in June gave it a final opportunity for Twitter to comply with the orders and warned of “serious consequences” in case of non-compliance.
- Twitter has alleged that some of these orders were “procedurally and substantially” non-compliant with the provisions of Section 69A of the IT Act.

Section 69 (A) of the Information Technology Act, 2000:

- Section 69A empowers the authorities to intercept, monitor or decrypt any information generated, transmitted, received or stored in any computer resource if it is necessary or expedient to do so in the interest of:
 - * The sovereignty or integrity of India, defense of India
 - * The security of the State
 - * Friendly relations with foreign states
 - * Public order or for preventing incitement to the commission of any cognizable offence
 - * For investigation of any offence
- It also empowers the government to block internet sites in the interests of the nation. The law also contained procedural safeguards for blocking any site.
- This provision comes under the purview of Article 19 of the Constitution which guarantees freedom of speech and expression, as Clause 2 of the article allows the state to impose “reasonable restrictions” on the freedom of speech and expression which are the same under the Section 69A of the IT Act.
- All the orders to limit the content from circulating must be recorded in writing.
- Upon failure to comply with the orders, the social media intermediaries can be fined along with an imprisonment term which may extend up to seven years.

Procedure of implementation of the provisions:

- The procedures for executing these provisions are mentioned in the Information Technology (Procedure and Safeguards for Blocking for Access of Information by Public) Rules, 2009
- It says that a government-designated officer and an examination committee must verify the content in question within 48 hours of receiving the takedown request.
- Rules also provide an opportunity for the originator of the content to provide clarifications.

- These recommendations are forwarded to the Secretary of the Dept of Information Technology for approval to proceed further with the request to the social media intermediary for restricting access.
- There are emergency provisions that suggest that the clarification be sought after the content has been blocked for specific reasons but within 48 hours.
- The blocking orders can be revoked after thorough scrutiny.
- Rule 16 of the Rules requires strict confidentiality to be maintained regarding all the blocking orders by the government and the actions taken by an intermediary in response to such requests.
 - * This provision has been criticised as it affects the transparency of the process.

Procedural issues highlighted by Twitter:

- Twitter claims that the government has been simply using the words of Section 69A as reasons for blocking URLs and accounts.
- The Supreme Court in its judgment in the Superintendent, Central Prison, Fatehgarh vs Ram Manohar Lohia case (1960) said that the restrictions made in the public interest must have a reasonable connection with the objective being achieved and held that the restrictions would be set aside if the connection is “far-fetched, hypothetical or too remote”
 - * However, Twitter has alleged that the government has not provided reasons which justify that the restrictions were required in the interest of public order or for any other reason.
 - * Twitter says that it restricts violative content only based on a “valid and properly scoped request” from an authorised entity
- Twitter has raised concerns against the restriction orders that are aimed at blocking individual accounts and not the specific content.
 - * Twitter has questioned if the scope of the legislation is restricted to the already-existing content or content that could be potentially created in the future (by the blocked individuals).
- Twitter has also said that the basis on which multiple accounts and posts have been flagged by the Ministry is “arbitrary” or “disproportionate” as they have failed to provide the originators prior notice and mandatory hearing.
- Further, some of these blocking orders pertain to official accounts of political parties and journalists, blocking which violates the right to free speech.

Supreme court's views on the provisions of Section 69 (A) of IT Act:

- The Supreme Court in the Shreya Singhal vs Union of India case, upheld the constitutionality of Section 69A of the IT Act on the basis that the grounds for blocking a website were the same as those found in clause 2 of Article 19.

- * The court had also acknowledged the provisions of the section that provided an opportunity for a hearing for the author of the content and the intermediary.
- Further, the Supreme Court has suggested in the past that the content must be assessed from the standards of a “strong-minded, firm and courageous” person and must not be from the standpoint of a “weak” individual who senses danger in every opposing point of view.

Nut graf:

According to Twitter’s latest global transparency report, India accounted for the fourth highest number of legal content takedown requests to the company under Section 69A of the IT Act. In this context, the social media intermediary has approached the Court alleging that these requests are arbitrary and violate the right to free speech.

Important legislations

9. Antarctica Bill

- » Prelims: Antarctica Bill and Antarctic treaty
- » Mains: Key provisions of Antarctica Bill and India’s Achievements in Antarctica

Context:

- The Indian Parliament passed the Indian Antarctic Bill which was moved by the Minister of Earth Sciences.

Indian Antarctic Bill, 2022:

- The Indian Antarctic Bill, 2022 establishes a comprehensive set of regulations for scientific expeditions, as well as individuals, businesses, and tourists visiting Antarctica.
- The Bill provides the Indian courts the jurisdiction over crimes committed on the continent by Indian citizens or foreign citizens participating in Indian expeditions.
- The main aim of the Bill is also to ensure the demilitarization of the region along with getting it rid of mining or illegal activities.
 - * It also aims that there should not be any nuclear test/explosion in the region.
- The key objective of the Bill is to ensure that India is committed to its obligations as a signatory to the Antarctic Treaty, the Protocol on Environment Protection (Madrid Protocol) to the Antarctic Treaty and to the Convention on the Conservation of Antarctic Marine Living Resources.

Antarctic Treaty:

- The Antarctic Treaty was signed in 1959, during the Cold War by 12 countries that had vested interests in Antarctica and it came into force in 1961.
- The treaty provides a framework for international relations concerning Antarctica.
- The treaty aims to:
 - * Demilitarize Antarctica
 - * Establish it as a zone free of nuclear tests and the disposal of radioactive waste
 - * Ensure that it is used for peaceful purposes
 - * Promote international scientific cooperation in Antarctica
 - * Set aside disputes over territorial sovereignty
- Currently about 54 countries have acceded to the treaty.
- India became a party to the treaty in 1983.
- India has shown an increased interest in the ecological, geographical, geological, and biodiversity of the region

Provisions of Indian Antarctica Bill:

- The Bill provides a harmonious policy and regulatory framework for India’s Antarctic activities through well-established legal mechanisms and will help in efficient and elective operations of the Indian Antarctic Programme.
- The Bill also proposed to set up the Indian Antarctic Authority (IAA) under the Ministry of Earth Sciences, which shall be the apex decision-making authority and shall facilitate programmes and activities permitted under the Bill.
 - * The Secretary, Ministry of Earth Sciences will be the Chairperson of the IAA and the IAA will have official members from the concerned Indian Ministries and decisions will be made by consensus.
- The bill establishes a quota system for commercial fishing in the area. However, in accordance with international law, strict guidelines are in place.
- Further, the bill provides a complex permit system for any expedition or individual wishing to travel to the continent. These permits will be issued by a government-created committee.
- Drilling, dredging, excavation, and collection of mineral resources are all prohibited under the bill. The only exception is scientific research that has been approved.

- Drilling, dredging, excavation, and collection of mineral resources are all prohibited under the bill. The only exception is scientific research that has been approved.

India's Achievements in Antarctica:

- Operation Gangotri was the first Antarctic expedition undertaken in 1982.
- First Antarctic team started wintering there in 1984.
- An unmanned Antarctic research base named Dakshin Gangotri was established.
- India has set up two manned research stations in Antarctica namely
 - * Maitri which has been in operation since 1989 on the Schirmacher Oasis

* Bharati, which was commissioned in 2012 in Larsmann Hill.

- About 40 expeditions to the continent have been undertaken till date.

Nut Graf:

The continuing and growing presence of Indian scientists in Antarctica warrants domestic legislation on Antarctica consistent with its obligations as a member of the Antarctic Treaty. This is also in sync with the emergence of India as a global leader on important international fronts.



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ECONOMY

Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

1. Depreciation of the Indian rupee

- » Prelims: Depreciation of Rupee
- » Mains: Factors responsible for the depreciation of the rupee, its impact on the economy and the measures undertaken to arrest the fall of rupee

Context:

- The Indian rupee has reached an all-time low against the U.S. dollar.

Details:

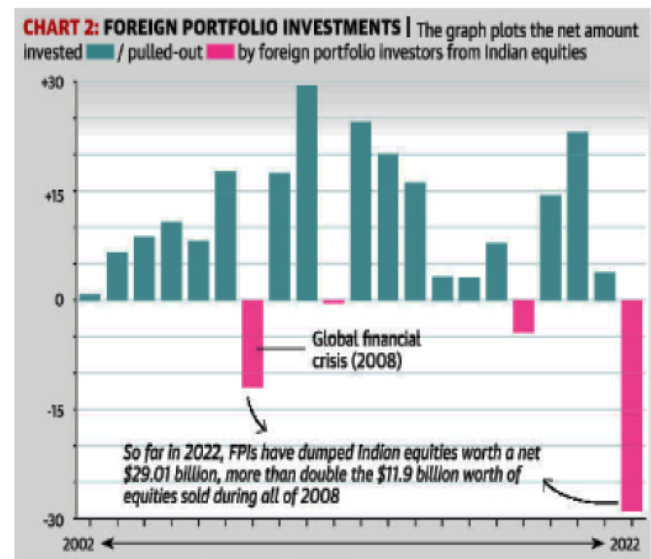
- The Rupee has depreciated more than 7% against the U.S. dollar since the beginning of 2022.
- The International Monetary Fund (IMF) expects the rupee to weaken past the 94 rupees to a dollar mark by FY 2028-2029.
- The dollar has strengthened against all currencies, emerging or developed. Even the historically strong euro and the British pound are weakening more than the rupee.

What is the depreciation of currency?

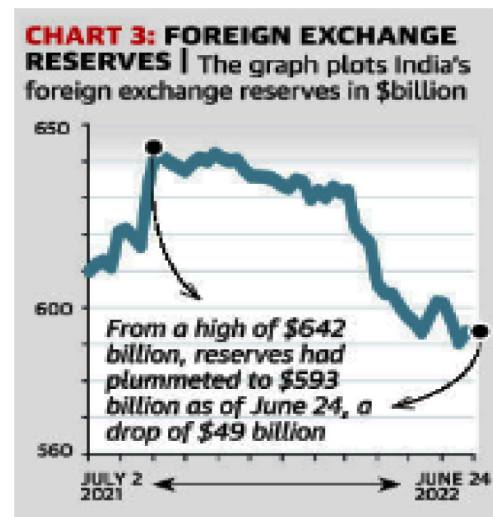
- Depreciation refers to the fall in the value of a country's currency in terms of its exchange rate compared with the currency of other countries.
- Depreciation discourages imports as the imported goods become more expensive due to reduction in the value of currency.
- Due to an increase in the prices of goods it leads to inflation.

Factors responsible for the depreciation of the rupee

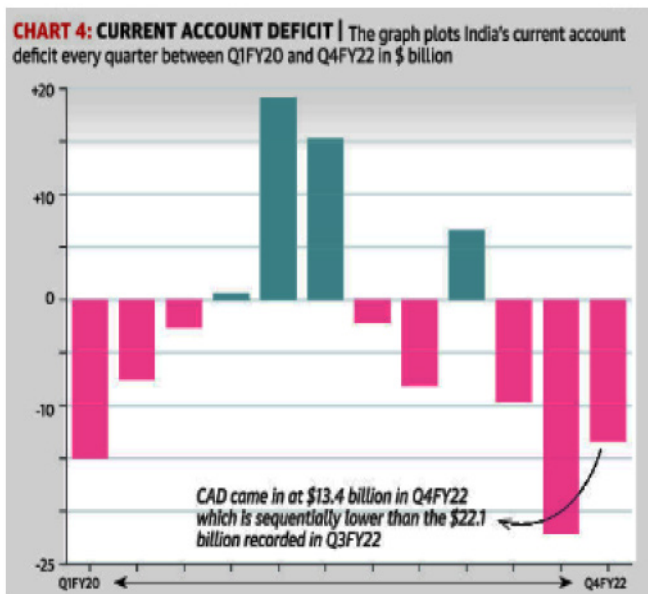
- Massive outflow of Foreign Portfolio Investors
 - * The U.S. Federal Reserve has been increasing its benchmark interest rates since March 2022.
 - * This has forced the investors to pull away capital back into the U.S from emerging markets like India to gain higher returns.
 - * Investors have sold Indian equities worth about \$29.01 billion in 2022.



- Drop in the forex reserves of the country
 - * Due to the increased demand for the dollar and corresponding excess supply of the rupee, the value of the rupee has depreciated.
 - * Forex reserves of India witnessed an all-time high of \$642 billion in September 2021 and there has been a drop of more than \$50 billion since then.



- Widening trade deficit
 - * In FY22, India incurred a current account deficit (CAD) of \$38.7 billion.
 - * This means that India is spending more on its imports rather than exporting or earning through remittances, which again increases the demand for dollars.



- High domestic price inflation in India is also a key reason for the fall in the value of the rupee.
 - * This means that the RBI has been creating rupees at a much faster rate as compared to U.S. Federal Reserve creating dollars.
 - * This difference in the rate at which both the currencies are created also plays an important role in determining the value of the rupee in the long term.
- Soaring fuel and other commodity prices in the global market
 - * Russia-Ukraine conflict leading to rise in crude oil prices and other imports.
 - * There is also an increase in the risk-off sentiment due to geopolitical tensions.
- Increased import of gold
 - * In FY22, India imported gold worth \$46.17 billion, which is 33% more compared to FY21.
 - * This has put increased pressure on India's CAD

Impact of the depreciation of the Rupee on Indian economy:

- A fall in the value of the rupee means that the imports of the country become costlier which will fuel inflation.
 - * It impacts the import-oriented industries like oil, gas and chemicals negatively.
 - * This will make oil and other imported components costlier, which will fuel inflation.
- The export advantage on account of the fall in rupee has been offset by concurrent depreciation of currencies of India's competitors such as Malaysia, Bangladesh and South Korea.
 - * Slower global demand also results in poor exports.

- * Also, the domestic manufacturers and service providers now have to pay higher dollar prices for the raw materials, equipment or other supplies they procure from overseas.
- The fall in the value of the rupee also impacts companies which pay royalties to foreign companies for franchises in India.
- There will be an increased outflow of Foreign Portfolio Investments (FPI) thereby affecting the forex reserves and the equity market of the country.
- Auto, real estate, and infrastructure sectors would be severely affected.
- Travellers and students studying abroad will have to spend more rupees to buy dollars from banks.

Measures undertaken to cushion the fall of Rupee:

RBI Measures:

- The Reserve Bank of India (RBI) has made timely interventions in the spot and forward foreign exchange markets to arrest the rupee depreciation.
- It has announced various measures to liberalize foreign inflows and make them more attractive. They are:
 - * Offering higher interest rates on fresh Foreign Currency Non-Resident (Bank) and Non-Resident External deposits.
 - * Interest rate relaxation and amount ceiling for External Commercial Borrowing loans.
 - * Allowing overseas investors to buy short-term corporate debt and opening more government securities under the fully accessible route in order to cushion the fall of rupee.
- The Reserve Bank of India has put in place a mechanism to facilitate international trade in rupees.
 - * Trade under the facility may be denominated and invoiced in rupees and the exchange rate between the currencies of the two partner countries would be market-determined.

Measures by the Government:

- Increase in import duty on gold
 - * The Union Government has increased the import duty on gold to 15% from 10.75% to address the problems of soaring gold imports of India's
- Imposes cess on export of crude oil and fuels
 - * The Centre has levied fresh taxes on the export of fuels which includes petrol, aviation turbine fuel (ATF) and also on the domestic sale of crude oil.
 - * A cess of ₹23,250 per tonne has been levied on crude oil in the wake of increased global prices which had led to jackpot profits for domestic oil producers who sell their output at international parity prices even to domestic refineries.
 - * Further, an additional excise duty of ₹6/litre has been imposed on exports of petrol and aviation turbine fuel (ATF) and ₹13/litre on diesel.

Way forward:

- The Government could promote some of the large market cap companies to be added to the major global indices such as MSCI and FTSE.
 - * This will help increase the weight of Indian equities in these indices, compensating for foreign portfolio outflows.
- Any excessive capital inflow leading to an appreciation of the currency should be avoided.
- RBI can direct the State-run banks to sell dollars to offer support to the rupee.
 - * By selling dollars in the market in exchange for rupees, the RBI can improve demand for the rupee and hence increase its value.
- RBI must judiciously utilize every dollar to ensure that global uncertainty, high commodity prices and rising U.S. interest rates do not add more undue pressure on the rupee.
- Further, the maintenance of the U.S.-India interest rate differential along with timely foreign exchange market interventions by RBI to manage volatility will aid in preserving the rupee value against the dollar.

Nut Graf

The depreciation in the value of the rupee requires immediate attention and interventions from the policymakers and the central bank as the fall in the value of the rupee is detrimental to the overall health of the economy.

Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

2. Outflow of FPIs from India

- » Prelims: Difference between FPI and FDI
- » Mains: Factors contributing to the outflow of FPI from India and associated concerns

Context:

- Foreign Portfolio Investors have been on a selling spree in India.
- While May 2022 saw sell-offs amounting to about ₹44,000 crores, June 2022 sell-off stood at ₹50,000 crores. This is the second-highest sell-off in a month since 1993, after March 2020. Notably, June is the ninth consecutive month that has witnessed a net sale of assets from FPIs- i.e., FPIs have sold more than they had purchased.

Foreign Portfolio Investment:

- Foreign portfolio investment (FPI) consists of securities and financial assets like equities, bonds and mutual funds held by investors in another country.

- Along with foreign direct investment (FDI), FPI is one of the common ways to invest in an overseas economy. FDI and FPI are both important sources of funding for most economies.
- Unlike FDI, FPI does not provide the investor with direct ownership of a company's assets. Hence the foreign portfolio investors are just passive shareholders and they do not exert any control over the companies whose shares they hold.
- Also, FPI is a relatively more liquid asset than FDI and is mostly volatile given that such investment allows the investor to enter or exit a stock at will and with ease.

Factors affecting the movement of FPI:

- Economic growth prospects and the possibility of attractive returns in the destination economy act as a major pull factor in attracting FPIs into an economy. On the converse, deteriorating economic prospects in an economy act as a major push factor for the outward flow of FPIs.
- The economic prospects of the source economy are also a major determinant of the movement of FPIs. The dwindling of economic growth, low rate of return and rise in inflation rates of the developed countries such as the U.S.A. could push foreign investors to the emerging markets. FPIs show keenness to invest in assets when there is a favourable differential between the real interest rates on offer in the country they aim to invest in, and other markets such as the U.S.

Why are Foreign Portfolio Investors exiting the Indian market?**Dampened economic growth prospects:**

- The economic disruption caused by the COVID-19 pandemic has dampened the economic growth and development prospects of the Indian economy. The post-pandemic recovery in the Indian economy has been uneven given the recurrent waves of the pandemic being witnessed.
- Industrial production has not been able to register a full and final recovery from the pandemic mostly attributable to the inflation pressure. This has also led to the dampening of business confidence sentiment to a 27-month low in June 2022.
- Consumption expenditure, which is a critical aspect of economic growth has remained weak in the Indian economy.

Inflation pressures in the Indian economy:

- The geopolitical churn caused by Russia's invasion of Ukraine has led to a lot of uncertainty and has also disrupted global supply chains. The supply of important commodities like sunflower and wheat has been disrupted, leading to a rise in global prices for these crops. This has resulted

in an acceleration of the overall inflation levels globally as well as in India. Inflation in India has stayed above the upper bound target of 6% level for five months running.

- High inflation rates are not suitable for sustained economic growth and development and it also impacts the real returns for a Foreign Portfolio investor.

Depreciating rupee:

- The Indian rupee has been depreciating against the dollar, which has seen a general strengthening against several other currencies. The rupee touched its record low of 79.33 against the U.S. Dollar recently.
- The depreciation of the Indian Rupee and the strengthening of the dollar adversely impact the ability of Foreign Portfolio investors to realize healthy economic returns on their investments in India. This is because, in such a scenario, the investor will be able to realize fewer dollars for a given quantum of rupee assets liquidated.

Increasing interest rates in the U.S. economy:

- The U.S. Federal Reserve has been raising the benchmark interest rate starting March this year in a bid to curtail the surging inflation in its economy. This has resulted in the narrowing of the differential between the interest rates in the U.S. and markets such as India.
- As a result, investors are preferring to shift their investments to developed economies such as the U.S.

Impact of the FPI sell-off in India:

- The large sell-off by foreign portfolio investors in India has been contributing to the depreciation of the Indian rupee. This is because such investors sell rupees in exchange for their home market currency. As the supply of the rupee in the market rises, its value declines. The weaker rupee will lead to a widening trade deficit for India as with a weaker rupee, India will have to shell out more funds to import the same unit of goods.
- The large-scale sell-off by foreign portfolio investors has triggered a significant decline in benchmark indices, resulting in a drop in the market capitalisation of companies.

Nut Graf

The dampened economic growth prospects in the Indian economy along with the inflation pressures and depreciating rupee have made Indian assets 'risky'. These factors along with the narrowing of the differential between the interest rates in the U.S. and India have led to a large exodus of foreign portfolio investments from India. This does not augur well for a developing economy like India.

Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment

3. India's investment-led revival

- » Mains - Importance of gross fixed capital formation in an economy; Scenario in India.

Context:

- Speaking at the third G20 Finance Ministers and Central Bank Governors meeting in Bali, the Indian Finance Minister, Nirmala Sitaraman noted the importance of public capital expenditure programmes in ensuring India's long-term economic growth prospects.

Background:

Success of public investment-led economic growth:

- Public investment-led economic growth has been observed in India.
- To overcome the challenge of economic contraction brought out by the Asian financial crisis of 1997, the then government initiated large scale public infrastructure projects in road building. It initiated Golden Quadrilateral project aimed at linking metro cities with high-quality roads and the Pradhan Mantri Gram Sadak Yojana to 'provide good all-weather road connectivity to unconnected habitations' in rural areas.
- The increase in public investment apart from helping create productive assets for the Indian economy also helped crowd in private investment.
- These initiatives helped in an economic revival in India in the 2000s wherein the GDP grew at 8%-9% annually.

Concerns/challenges:

- The article expresses serious doubts over the public investment led economic growth in India based on the following arguments.

Expansive definition of investment:

- Though the fixed investment to GDP ratio stood at an impressive 32% in 2021-22 (Ministry of Finance's Monthly Economic Review), the article argues against going by the face value of this number. The budgetary definition of investment refers to financial investments (which include purchase of existing financial assets, or loans offered to States) and not just capital formation which is a better indicator of the expansion of the productive potential in the economy.

Lag in investment:

- Though there has been an upturn in the aggregate fixed capital formation to GDP ratio in the recent times, the rate is still lower than that observed in the early 2010s.

Investment distribution:

- While there has been an upturn in gross capital formation and investments in India in recent years, the disaggregation of such investment by sector, types of assets and mode of financing are better indicators of the productive potential of such investments
- In recent times, the shares of agriculture and industry in fixed capital formation/GDP has fallen while the share of Services' sector has risen. Also within the services sector, the rise has been most notable in transport sector and within transportation sector, it is mostly roads. Thus there has been a very lop-sided growth in investment when it comes to sector wise investments.
- The services sector is not very employment intensive. This is of concern for a developing economy like India where inclusive growth acquires great importance. Also, for healthy domestic output growth, there is a need for balance between "directly productive investments" (in farms and factories) and infrastructure investments.
- The share of manufacturing sector in the investment ratio has witnessed a substantial fall in the last few years. With declining investment share, industrial output growth rate has fallen in India. This has resulted in India's import dependency going up.
- The public sector's share stands at 20%, while the private sector still accounts for a substantial share in investments. This is indicative of the limited impact of public expenditure.

Lack of domestic capacity:

- The lack of domestic capacity for essential raw industrial materials and capital goods remain major challenges for the Indian economy.
- This excessive dependency will render India vulnerable to any global and regional economic disruptions.

Other challenges:

- The prospects of sustaining investment recovery are likely to get harder with a depreciating rupee and rising inflation

Nut Graf

While the attempts to ramp up public investment to aid economic revival in India are welcome, there continues to remain doubts over the efficacy of such a policy given the associated concerns and challenges when it comes to public investment in India.

Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment

4. Gross Domestic Product**Context:**

- The Union government will soon be releasing the current fiscal year's first quarter's Gross Domestic Product (GDP) growth numbers. In this context, the article analyses the efficacy of GDP as a viable economic parameter.

Concerns with the usage of GDP as the only economic parameter of significance:

- Though GDP offers a simple metric to measure the economic progress of a nation and compare it across nations, there are serious concerns about the sole dependency on GDP numbers.

Does not reflect the interests of the common citizenry:

- India's employment elasticity has been decreasing since the 1980s.
 - * Employment elasticity is a measure of the percentage change in employment associated with a 1 percentage point change in economic growth. The employment elasticity indicates the ability of an economy to generate employment opportunities for its population as per cent of its growth (development) process.
- One percent of GDP growth today yields less than one-fourth the number of good quality jobs that it did in the 1980s. As a result, there has been a considerable decline in the creation of new jobs. Hence the correlation between formal sector jobs and GDP growth has weakened considerably over the years.
- Hence GDP growth numbers carry little significance for a common person whose primary concern remains the access to good employment opportunities, specifically, a high-quality formal sector job that ensures the dignity of work, good income and job security, which can help ensure sufficient income for the people.

Not comprehensive measure:

- While GDP growth numbers are indicative of the average growth rate of the country, they may not imply inclusive growth. Also, the fast-growing economies may still be unable to provide prosperity and social mobility for their people.
- Also, GDP overlooks parameters such as poverty levels and hence it may not be a measure of societal well-being.

Neglect of social issues:

- The compulsive chase for GDP growth at all costs can be counter-productive. This can lead to the deflection of attention away from social issues. This can in the long run trigger a backlash among the general public against governments. This can lead to social disharmony and cause economic disruptions which will only further adversely impact the economic prospects of the country.
- A case in point is Sri Lanka's current economic and political crisis.

Recommendations:

- The administration should seek to overhaul India's economic performance measurement framework, by moving away from the excessive reliance on GDP growth numbers towards a more comprehensive measurement framework of economic and social performance. This could involve multiple indicators rather than just one metric.

Nut Graf

The sole dependency on GDP number as a metric for measuring economic growth and development is not recommended given that GDP may not be a measure of societal well-being as it tends to overlook social issues and may not imply inclusive growth.

Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

5. Five years of GST

- » Mains: Critical evaluation of Goods and Services Tax regime in India

Context:

- Completion of 5 years of the Goods and Services Tax (GST) regime.

Increase in inflation post GST:

- Reports from across the world show that GST initially increases inflation.
- The Consumer Price Index (CPI) inflation stood at 3.66% in the 12 months before the implementation of GST. However, inflation increased to 4.24% after the implementation of GST.
- This pattern of inflation was also seen in the case of Australia, New Zealand, and Canada.

The mechanism of GST:

- The revenue-neutral rate (RNR) (is the rate of tax that allows the government to keep earning the same tax revenue, despite a change in the governing tax laws) is calculated in such a method that it does not cause higher inflation.

- * However, revenue neutrality does not guarantee that prices would not change in the economy as the weight of goods in the consumption basket and their contributions to indirect tax collections are not the same.

- * Example: Food and drinks (which constitutes 46% of the CPI index), rent, and clothing which are all major parts of the CPI basket are either not taxed or taxed at low rates.

- The impact of GST on the prices of goods and services depends on factors such as the degree of exemptions, the rate structure, the weightage of such goods and services in the basket, the efficiency of the administrative set-up, etc.

Actual impact of GST on the Indian economy:

- Before the implementation of the GST, it was expected that the prices would reduce as the GST regime harmonises indirect tax rates and eliminates the cascading effect.

- According to reports, the actual CPI growth in the study period was seen to be 4.61%. However, the counterfactual estimate of inflation (if GST was not implemented) was found to be 3.24%.

- * This shows that the GST implementation increased the CPI inflation by 1.37 percentage points (pp).

- The report also pointed out that the CPI core inflation (excluding food and fuel) increased by 1.04pp in the post-GST period.

- GST was found to have had a significantly positive impact on inflation of goods like paan, tobacco and intoxicants, clothing and footwear, housing, and miscellaneous sectors.

- * In the case of non-exempted food and beverages, the implementation of GST had a negative impact of 4.42% on price levels.

- The increase in inflation after the implementation of GST is mainly attributed to the rise in the tax rate of some goods and services and the inclusion of business activities that were earlier exempted.

- * This fuels inflation because the firms passed on the cost of GST to the consumers.

- According to the Nobel Prize-winning economist Joseph Stiglitz, rising market power is detrimental to the economy as it increases economic inefficiency and reduces the economy's resiliency.

- * Further, to take advantage of market power, the firms would pass on the taxes to end consumers, causing a cost-push inflationary impact of the GST.

- * However, the government established the National Anti-profiteering Authority (NAA) to make sure that companies did not use GST as an excuse to raise prices.

Conclusion:

- The implementation of the GST regime has reduced inflation of food items and has increased the inflation of non-food items like CPI, paan, tobacco and intoxicants, clothing and footwear, housing, miscellaneous, and non-exempt food and beverages.

Nut Graf

Before the implementation of the GST regime, it was said that it would positively benefit the economy in terms of higher revenue buoyancy, lower inflation, higher revenue and growth, but statistical reports suggest that the GST implementation has had an inflationary impact on the Indian economy.

Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment

6. Controversy over GST levies on food

- » Prelims: GST Council; Revenue Neutral Rate
- » Mains: Rationalization of GST system

Context:

- Starting from July 18, a 5% Goods and Services Tax (GST) would be levied on select food items and grains that are sold in a pre-packed, labelled form even if they are not branded.
- Up until now, these items were exempt from GST.

Details:

- The items on which the new tax would be applied include curd, lassi, buttermilk, puffed rice, wheat, pulses, oats, maize and flour.
- Notably, the affected food items, will be exempt from GST when sold loose. Also, pre-packed items weighing over 25 kg would not attract GST.
- The GST Council approved the 5% tax in June 2022. The recommendation for the new tax was given by the Group of Ministers (GoMs) set up by the GST council to consider steps to rationalise the tax rates and correct anomalies.

Rationale for the new tax:**Rationalization of GST system:**

- The new GST tax are part of a broader set of changes in the GST structure to do away with tax exemptions as well as concessional tax rates.
- The GST tax provision to tax only such items which are sold under a registered brand had triggered 'rampant misuse of tax exemption' by reputed manufacturers and brand owners leading to a gradual drop in GST revenues from this segment.

Raising tax revenue:

- The move is aimed at raising revenues from the GST.
- As against the envisaged 'revenue-neutral' rate of 15.5% at the launch of the GST system, the effective rate stood at a low 11.6%.

Concerns:

- The tax rise can have a marginal impact on India's consumer inflation rate which has been higher than the targeted 6% in recent times.
- As per available data, 85% of the country's consumers use such unbranded goods. Hence the price rise could impact the consumption pattern of this large segment of population.
- The fresh tax levies have attracted an outcry from traders as well who fear a drop in their profit margins.

Nut Graf

The new GST tax are part of a broader set of changes in the GST structure to do away with tax exemptions as well as concessional tax rates. This will help the administration increase GST revenues.

Marketing of agricultural produce**7. Dragon Fruit**

- » Prelims: Dragon Fruit

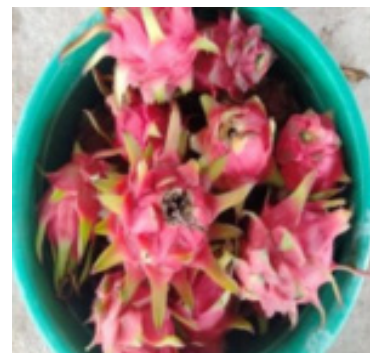


Image Source: DownToEarth Context:

- The fruit which is also known as Pitaya, Pitahaya, strawberry pear, noblewoman and queen of the night belongs to the Cactaceae family.
- The fruit is indigenous to America.
- Dragon fruit is cultivated extensively throughout tropical and subtropical regions of the world and in countries like Peru, Mexico, South Asia, Southeast Asia, East Asia, the United States, the Caribbean, Australia, etc.
- The fruit is also known as a "super fruit" for its health benefits.
 - * The fruit is considered good for patients with diabetes as the fruit is low in calories and high in nutrients like iron, calcium, potassium and zinc.

- The low maintenance and high profitability of the fruit have attracted the farming community throughout India.
- The fruit can grow in diverse climatic conditions and requires slightly acidic soil.
- It is now being cultivated in states like Maharashtra, Karnataka, Andhra Pradesh, West Bengal, Telangana, Tamil Nadu, Odisha, Gujarat and the Andaman and Nicobar Islands.

Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

8. Ranking of States' Exercise 2021

- » Prelims: Parameters considered for the ranking and performance of different states

Context:

- Results of Ranking of States' Exercise 2021 on support to Start-up Ecosystems declared.

Background:

- The Department for Promotion of Industry and Internal Trade (DPIIT) has been conducting the States' Start-up Ranking Exercise since 2018 to facilitate the ease of building a start-up and doing business across the country.
- The State Start-up Ranking Exercise aims to support states and union territories in developing their start-up ecosystem and learn from the best practices in each state and union territory.

Ranking of States' Exercise 2021 Details:

- The current edition ranks states and UTs based on data from the time period 1st October 2019 to 31st July 2021.
- The 31 participating states and UTs were evaluated across 7 broad Reform Areas consisting of 26 Action Points ranging from Institutional Support, Fostering Innovation and Entrepreneurship, Access to Market, Incubation support, Funding Support, Mentorship Support to Capacity Building of Enablers.
- The exercise plays a crucial role in easing the business environment for start-ups in the country.

Result Highlights:

- **Best Performers:**
 - * States category – Gujarat, Karnataka
 - * UT & NE states category – Meghalaya
- **Top Performers:**
 - * States category – Kerala, Maharashtra, Orissa and Telangana
 - * UT & NE states category – Jammu & Kashmir

Issues relating to growth, development and employment.

9. National Apprenticeship Promotion Scheme (NAPS)

- » Prelims: About National Apprenticeship Promotion Scheme (NAPS)

Context:

- The Ministry of Skill Development and Entrepreneurship announced that National Apprenticeship Promotion Scheme (NAPS) will be part of the Direct Beneficiary Transfer (DBT) scheme.

National Apprenticeship Promotion Scheme (NAPS)

- National Apprenticeship Promotion Scheme (NAPS) was launched in 2016.
- Objective: to promote apprenticeship training in the country and to provide financial support to establishments undertaking apprenticeships.
- The scheme aims to motivate employers to hire apprentices and help them in discovering the right job profiles while maximising their potential through in-depth skill development.
- Under the scheme, the Government will share 25% of the prescribed stipend subject to a maximum of Rs 1500/month/apprentice with the employers.
- With the launch of the DBT scheme, the government will directly transfer its contribution to the bank accounts of apprentices through National Skill Development Corporation (NSDC).
 - * This move is expected to boost apprenticeship and aims to realise the potential of Skill India.
- State Apprenticeship Advisers (SAAs) and Regional Directorates of Apprenticeship (RDAs) are entrusted as implementing agencies in their respective state/regions.
- This scheme will also play a key role in skilling, reskilling and upskilling young Indians, increasing their per capita economic production and supporting national missions.

Infrastructure - Railways

10. Taranga Hill – Ambaji Abu Road Rail Line

- » Prelims: Taranga Hill – Ambaji Abu Road Rail Line

Context:

- The Cabinet Committee on Economic Affairs chaired by Prime Minister Shri Narendra Modi has approved Taranga Hill – Ambaji – Abu Road new rail line to provide connectivity and improve mobility.

Details

- The proposed project will provide connectivity to Ambaji and will also provide alternate routes between Ahmedabad and Abu Road.
- The estimated cost of this project is Rs 2798.16 cr and will be completed by 2026-27.
- The rail line will connect two famous pilgrimage sites of Gujarat- Maa Ambaji temple and Shri Ajitnath Jain temple.
- The approved rail line will pass through the districts of Sirohi in Rajasthan, and Banaskantha and Mehsana districts of Gujarat.

Indian Economy and issues relating to planning, mobilisation of resources, growth, development and employment

11. Settling international trade in rupees

- » Mains: Impact and the advantages of Rupee payment mechanism on Indian economy and the associated challenges

Context:

The Reserve Bank of India has put in place a mechanism to facilitate international trade in rupees.

What is Rupee Payment Mechanism?

- Trade under the facility may be denominated and invoiced in rupees and the exchange rate between the currencies of the two partner countries would be market-determined.
- Under the new payment mechanism, Importers in India could make rupee payments to the Special Vostro account (an account that a correspondent bank holds on behalf of another bank) of the correspondent bank of the partner country, against invoices for the supply of goods or services from the overseas seller.
 - * Vostro accounts are not widely used because exporters typically prefer settlements in a strong and stable currency.
- Exporters from India shall be paid proceeds in rupees from the balances in the designated vostro account of the correspondent bank of the partner country.
- Advance payment can be received by Indian exporters against exports from overseas importers in INR through the new Mechanism.



Image Source: Economic Times

How does this change the status quo?

- The RBI has explicitly said that exchange of messages in a safe, secure and efficient way may be agreed upon mutually between the banks of partner countries.
 - * This provision allows partnering banks to use any messaging system they deem fit and not confine themselves to the SWIFT platform.
 - * This provision is important in the backdrop of recent Sanctions on Russian Banks by the SWIFT platform.
- RBI has allowed for surplus to be invested. The Special Vostro account's balance can be used for :
 - * Import/Export advance flow management
 - * Payments for projects and investments by foreign entities in India.
 - * Investment in Treasury Bills and Government Securities in terms of guidelines and prescribed limits, subject to the Foreign Exchange Management Act (FEMA) and similar statutory provisions.
 - * This will promote other countries to have current account surplus with India to open Special Rupee Vostro Accounts and use the surplus to build rupee denominated assets.
- RBI has specified that banks acting as authorised dealers need to secure prior approval from the regulator to put in place this new mechanism. Vostro accounts did not need permission earlier.
 - * This will help RBI to understand the interests of different countries in the new system and actual purpose of these accounts.

Benefits of the move

- In the short run, the move will promote exports from India.
- The move will also aid trade with nations under sanctions like Iran and Russia.
 - * This new mechanism is intended to ease doing business with Russia by easing the payment

issues. Bilateral trade between India-Russia during April 2021-March 2022 amounted to USD 9.1 billion.

- * It will be cost-efficient to buy oil from Russia with a depreciated ruble.
- The move will also reduce the risk of rupee depreciation as it will help reduce the demand for foreign exchange by promoting rupee settlement of trade flows.
 - * The impact on the rupee market is that foreign currency outflow would be lower by \$3 billion every month which would ease the downward pressure on rupee.
- It is being seen as a step towards complete convertibility of the rupee. Adoption of this mechanism by other countries will help in strengthening the rupee.
- Transactions in dollars can be avoided (as the exchange rate is at an all-time high of ₹80). The all-time high dollar rate has impacted Indian economy in terms of:
 - * Rising inflation
 - * Capital flight from India to the US (aggravated by interest rate hikes by the Fed and possible hikes in the European Union as well)
 - * Reducing the foreign exchange reserves

Challenges with the new mechanism:

- Any easing of the downward pressure on the rupee would be seen only in the medium-to-long term because in the current scenario, payments to Russia have anyway not been going through and a credit system has helped continuity of trade.
- With ongoing conflict in Russia, larger banks may not immediately set up vostro accounts to avoid further sanctions. Smaller banks may be ideal for the purpose and could provide the service with adequate support by the government.
- Acceptance by private parties (companies, banks) for trade and settlements.
- Volatility of Rupee
- Concerns or reactions from other countries, especially the U.S. and the western countries.

Nut Graf:

The new mechanism can be seen as the first step towards making the rupee fully convertible. It will also aid in rupee stabilization after its fall with respect to US dollars. This aims to make commerce with sanctioned nations easier when the rupee is at an all-time low. This would lessen the risk of currency fluctuations, especially when considering the parity between the euro and the rupee.

Issues relating to planning, mobilization of resources, growth, and development

12. Innovation Index

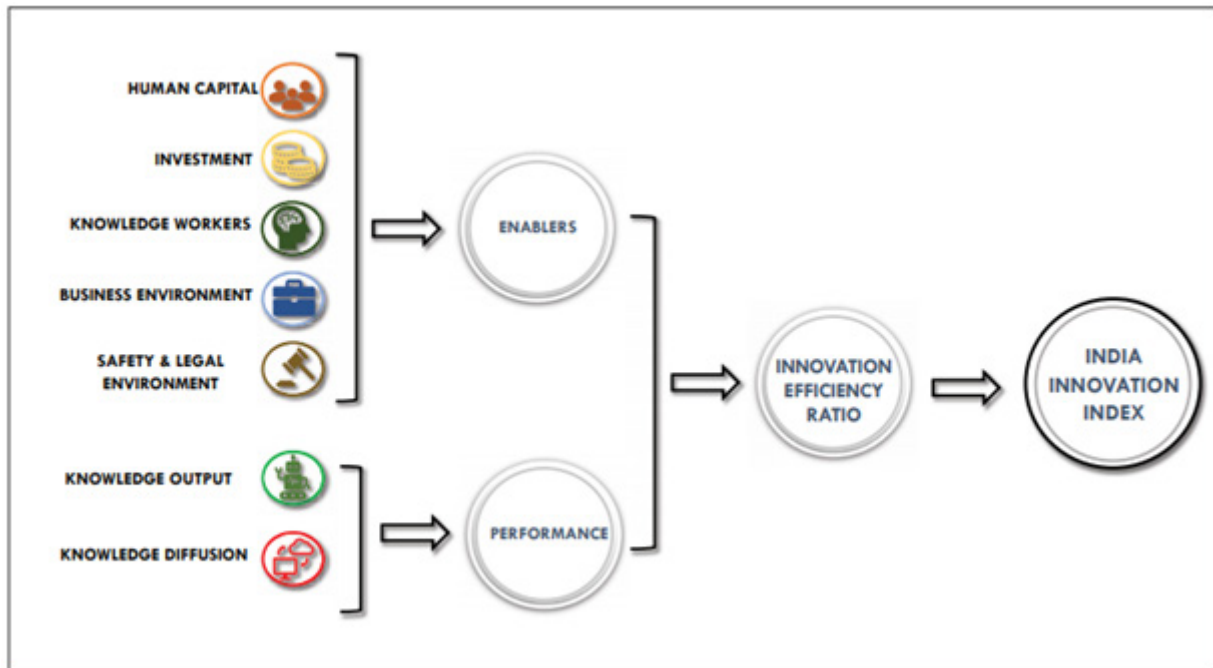
- » Prelims: India Innovation Index, Global Innovation Index and NITI Aayog
- » Mains: Key takeaways from India Innovation Index, 2021

Context:

NITI Aayog's India Innovation Index, 2021

India Innovation Index

- India Innovation Index is prepared by NITI Aayog and the Institute for Competitiveness.
- India Innovation Index is a comprehensive tool for the evaluation and development of the country's innovation ecosystem.
- It ranks the states and the union territories on their innovation performance to build healthy competition amongst them.
- The key objective of the index is to drive innovations across all the Indian states and Union Territories and to design policies for innovations in different regions, the index is released.
- It is developed on the lines of the Global Innovation Index (GII)
- The Index measures innovation input through 'enablers' and innovation output as 'performance'
- The parameters which are considered for measuring innovation include:
 - * Patents per million of population
 - * Publication in scientific journals
 - * percentage of GDP spending on research
 - * Demographic dividend and other economy specific parameters
 - * Number of PhD students and knowledge-intensive employment
 - * FDI inflows
 - * Enrolment in engineering and technology and number of highly skilled professionals
- There are three categories in which the India Innovation Index is divided into:
 - * States
 - * Union Territories
 - * Hill and the North East States



India Innovation Index, 2021

Major States		
States	III 2021	Rank
Karnataka	18.01	1
Telangana	17.66	2
Haryana	16.35	3
Maharashtra	16.06	4
Tamil Nadu	15.69	5
Punjab	15.35	6
Uttar Pradesh	14.22	7
Kerala	13.67	8
Andhra Pradesh	13.32	9
Jharkhand	13.10	10
West Bengal	12.98	11
Rajasthan	12.88	12
Madhya Pradesh	12.74	13
Gujarat	12.41	14
Bihar	11.58	15
Odisha	11.42	16
Chhattisgarh	10.97	17

NE and Hill states			UT and City states		
States	III 2021	Rank	States	III 2021	Rank
Manipur	19.37	1	Chandigarh	27.88	1
Uttarakhand	17.67	2	Delhi	27.00	2
Meghalaya	16.00	3	Andaman and Nicobar Islands	17.29	3
Arunachal Pradesh	15.46	4	Puducherry	15.88	4
Himachal Pradesh	14.62	5	Goa	14.93	5
Sikkim	13.85	6	Jammu and Kashmir	12.83	6
Mizoram	13.41	7	Dadra and Nagar Haveli & Daman and Diu	12.09	7
Tripura	11.43	8	Lakshadweep	7.86	8
Assam	11.29	9	Ladakh	5.91	9
Nagaland	11.00	10			

Image Source: PIB

- Karnataka secured the top rank in NITI Aayog's India Innovation Index, 2021.

* Karnataka has held the top rank under the Major States category, in all three editions of the Index so far.

- Manipur bagged the top rank in the Northeast and Hill States category.
- Chandigarh is the top performer in the Union Territories and the City States category.
- Acknowledging that India's average innovation score is not up to the mark, considering India's ambitions of being one of the top 25 nations in the Global Innovation Index, the latest report by NITI Aayog has recommended measures such as:
 - * Increasing Gross Domestic Expenditure on R&D (GDERD)
 - * Promoting private sector participation in R&D and closing the gap between industry demand and what the country produces through its education systems
- The report said that the countries that spend less on GDERD fail to retain their human capital in the long run and the ability to innovate is dependent on the quality of human capital.

* India's GDERD as a percentage of GDP is about 0.7%.

Global Innovation Index (GII)

- The GI provides detailed metrics about the innovation performance of countries and economies all over the world.
- The index was first released in 2007 and is released annually.
- It is published by INSEAD, Cornell University, and the World Intellectual Property Organization (WIPO), along with other institutions.
- The index uses 80 indicators that take into account a wide idea of innovation including education, political environment, business sophistication, and infrastructure.
- The index is based on both objective and subjective data compiled from various sources including the World Bank, the International Telecommunication Union (ITU), and the International Monetary Fund.

- The GII has become an important reference for governments and businesses to measure a country's performance on innovation.
- India climbed two positions and secured 46th rank among 132 economies in the Global Innovation Index, 2021, which was the 14th edition of the Index.



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INTERNATIONAL RELATIONS

Bilateral, Regional and Global Groupings and Agreements Involving India and/or affecting India's interests.

1. India-Vietnam ties

- » Prelims: India-Vietnam cooperation in the maritime domain – Significance and recommendations

Context:

- India and Vietnam are celebrating the 50th anniversary of their diplomatic relations. In this context, the article analyses the India-Vietnam relationship under various aspects.

India's engagement with Vietnam in the maritime domain:

- The scope and scale of the India-Vietnam defence cooperation, particularly in the maritime domain, have been deepening with time.
 - * The signing of the 'Joint Vision for Defence Cooperation' and a memorandum of understanding on mutual logistics support has strengthened mutual defence cooperation between the two countries.
 - * India has offered a U.S.\$100 million Defence Line of Credit to Vietnam and has promised early finalisation of another U.S.\$500 million Defence Line of Credit to enhance Vietnam's defence capability.
 - * India has agreed to expand training to the Vietnam Navy.
 - * India has handed over 12 high-speed boats to Vietnam and a Khukri-class corvette is also expected to be given soon to Vietnam. The two countries have regular maritime security dialogues, naval exercises, ship visits and Coast Guard cooperation.
- At the sub-regional and multilateral levels too, India and Vietnam have been looking for ways to coordinate and collaborate in the maritime domain.
 - * India and Vietnam have been working with each other in multilateral frameworks, such as the Indian Ocean Rim Association (IORA), the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), the Mekong-Ganga Cooperation, ADMM-Plus or the ASEAN Defence Ministers Meeting-Plus.
 - * o There is also the proposal for an ASEAN-India Maritime Exercise and an informal meeting between India and ASEAN Defence Ministers in November 2022.

Significance of maritime engagement with Vietnam for India:

- There are four key motivations behind India's growing maritime engagement with Vietnam.
 - * India seeks to counter an assertive China in the region by strengthening Vietnam's military power. Notably, India and Vietnam face territorial disputes with and shared apprehensions about their common neighbour, China.
 - * Given the increasing share of maritime trade of India with East and Southeast Asia, the sea lines of communication including the ones through the South China Sea occupy strategic significance for India. Vietnam shares a long coastline with the South China Sea and could help India find a foothold in the region. Also notably Vietnam is supportive of the freedom of navigation and sovereign maritime territorial rights as enshrined under international maritime law.
 - * 55% of India's trade with the Indo-Pacific region passes through the South China Sea.
- India's presence in the South China Sea region will help it track potential developments in the maritime domain that could affect its national interests.
- The maritime engagement with Vietnam will allow the Indian Navy a forward maritime presence and also help forge naval partnerships with other countries in the region.

Recommendations:

- Given the strong potential of the bilateral relationship, a strong commitment of political leadership along with the necessary institutional frameworks for cooperation between the two countries is the need of the hour.
- The two countries should explore more collaboration and cooperation in the domains of shipbuilding, maritime connectivity, maritime education and research, coastal engineering, blue economy, marine habitat conservation, and collaboration between maritime security agencies.

Nut Graf

Growing convergence of strategic and economic interests of the two countries makes India and Vietnam indispensable partners for each other in the coming years. Apart from the mutual benefits, the bilateral relationship can also bring peace, security and prosperity to the region at large.

Effect of policies and politics of developed and developing countries on India's interests

2. India- South Korea relations

- » Mains: Challenges and opportunities in India-South Korea relations and key recommendations

Challenges to India-South Korea relations:

- In recent years, India and the Republic of Korea (South Korea) have witnessed a divergence in their national policies.
 - * This was seen in the case of the multilateral security grouping of Quad (the U.S., Australia, India and Japan) wherein South Korea has moved away from grouping, while India has actively participated in it.
- The trade relations between the two countries was also taking place at a slow pace.
- Further, the efforts by the two countries to upgrade their Comprehensive Economic Partnership Agreement (CEPA) agreement has also not yielded intended results.

Opportunities to improve the bilateral relations between the two countries:

Change in South Korea's national policies

- The newly elected President has brought about a paradigm shift in South Korean foreign and security policies.
- South Korea under the new leadership aims to become a "global pivotal state, anchored in liberal values and a rules-based order", that "advances freedom, peace, and prosperity through liberal democratic values and substantial cooperation".
- This change in South Korea's policies is expected to bring about multiple opportunities for a multi-dimensional India- Korea partnership.

Changes in South Korea's relations with China

- South Korea had signed the "three no's" agreement with China which includes: no additional Terminal High Altitude Area Defense (THAAD) deployment; no participation in the U.S.'s missile defence network, and no establishment of a trilateral military alliance with the U.S. and Japan.
- However, South Korea is looking to correct its heavy dependence and tilt towards China and this is expected to create new economic opportunities for India and South Korea.

Defence sector

- In 2020, India and South Korea signed a Roadmap for Defence Industries Cooperation agreement but it could not be achieved due to the lack of political and strategic alignment.
- Advanced defence technologies and modern combat weapons also have a huge potential for cooperation between the two countries.

New opportunities

- The strategic alignment and convergence between the two countries will unlock opportunities in areas such as public health, green growth and digital connectivity.
- The two countries can further enhance trade investments and improve supply chains and can target bilateral trade worth \$50 billion by 2030.

Recommendations:

- India must try to include the participation of South Korea in various maritime security exercises in the Indian Ocean like the Malabar and other exercises with Quad countries.
 - * This will help improve India's naval influence in the Indo-Pacific region.
- There is a need for strengthening a trilateral security dialogue between India, South Korea and Japan as it helps formulate joint regional security policies.
- South Korea should be seen as the fourth pillar in India's Indo-Pacific strategy along with countries like Japan, Australia, and Vietnam.
- Efforts from both the countries must be focused on enhancing the bilateral partnership at the political, diplomatic and security domain levels.
 - * South Korea's advancements in the fields of critical technologies, cybersecurity, and outer space can contribute immensely to India.
- India must also help South Korea to counter Chinese pressure and the threats from North Korea as a secure, strong, and democratic South Korea can be a long-term partner with India

Nut Graf

Both India and South Korea must focus on creating opportunities for a multidimensional partnership between the countries as it will not only be mutually beneficial to both the countries but also for the entire Indo-Pacific region.

Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests.

3. Strains on India-Russia defence cooperation

- » Prelims: Major defence platforms brought by India from Russia
- » Mains: Hindrances to Russia-India defence cooperation and recommendations in this regard.

Context:

- As the Russia-Ukraine conflict stretches on with no end in sight, there are growing apprehensions on Russia's ability to adhere to timely deliveries of spares to existing defence platforms as well as new defence hardware to India.

Background:**Defence relationship between India and Russia:**

- Despite the volume of defence imports from Russia into India has reduced in the last decade, India continues to remain Russia's largest arms buyer with a major chunk of legacy hardware from Russia and the Soviet Union. India's army has high dependency on Russia with respect to certain weapon systems specially in the area of air defence, rockets, missiles and certain tanks from Russia.
- The defence trade between India and Russia has crossed \$15 billion since 2018.
- India has brought major defence platforms like the S-400 long range air defence systems from Russia. Other major contracts include construction of stealth frigates in Russia for India, licensed production of the Mango Armor-piercing fin-stabilised discarding sabot (APFSDS) rounds for the T-90S tanks, T-90S tanks and AK-203 assault rifles among others in India.
- Deals for MiG-29 fighter jets and SU-30 MKI aircraft are also a notable defence deal between India and Russia.

Details:

- Some of the major defence deals with Russia are either pending or under review.
- There has been a notable delay in the delivery of the second regiment of the S-400 and the operationalization of the agreement for the manufacture of AK-203 rifles in India.
- Several big ticket deals have been deferred by the Defence Ministry as part of the review of all direct import deals. This includes the deal for Ka-31 early warning helicopters and Iglu-S very short range air defence systems.
- The manufacture of 200 K-226T utility helicopters in India is also under reconsideration.

India's take on the issue:

- When the war began in February, the Indian armed forces had stocks of spares and supplies for eight to ten months and this was considered sufficient as the then expectation was that the war would end quickly.
- However the prolonged war has adversely impacted the supply chain of certain spares and ammunition. However, officials have stated that there would not be any impact on the Army's operational preparedness along the borders.
- Also the emergency procurements made by the armed forces in the last two years in the backdrop off the standoff in Eastern Ladakh has helped India stock up on spares and ammunition. This can help cover up any shortfall or delay in supply of spares for the time being.

Hindrances to India-Russia defence relationship:

- With Russia itself being involved in a war in Ukraine, the Russian defence industry would be caught up in replenishing the inventories of their own armed forces. This would limit their ability to deliver the defence equipments to other countries like India.
- The western sanctions on Russia for its war in Ukraine could have an impact on India-Russia defence relationship. Additionally, country specific sanctions against Russia like the U.S.'s CAATSA (Countering America's Adversaries Through Sanctions Act) could also undermine the defence relationship between India and Russia.
- Russia has been shut out of the global SWIFT system for money transfers. This could impact the payment by India to Russia for its defence purchases especially given the large volume of payments to be made. This could result in the delaying of the delivery schedule. The Rupee-Rouble arrangement could help mitigate this impact to some extent.

Recommendations for India:

- India must try to get Russia to adhere to its agreed timelines by leveraging its special relationship with Russia and through communication at the highest official levels and. This should be the immediate priority.
- The Defence Ministry and Services must carry out assessments on the possible impact of delays in the deliveries of spares and defence hardware and plan for alternative mitigation measures.
- Additionally, India must also seek to identify alternate sources for defence supplies from other friendly foreign countries in the long term. This will help India reduce its excessive dependency on Russia for defence platforms.
- Also the private sector in India must be incentivized to step up domestic production to meet the requirement for spares as well as defence platforms. This would be in line with the AatmaNirbhar Bharat vision in defence equipments.

Nut Graf

Given that some of the major defence deals with Russia are either pending or under review, this development could strain the otherwise robust defence cooperation between the two countries, which forms a vital aspect of the India- Russia relationship.

Bilateral, Regional and Global Groupings and Agreements Involving India and/or affecting India's interests.

4. The perils of multilateralism

- » Mains: Arguments against multilateralism and associated recommendations

Context:

- In the light of the series of multilateral summits attended by the Indian Prime Minister, the article evaluates the effectiveness of multilateralism in the pursuance of Indian foreign policy.

- * The Indian Prime Minister has taken part in the Quad summit, 14th BRICS virtual summit and G-7 summit in the recent past.

Arguments against multilateralism:

- Despite multilateral organizations and groupings providing a much-needed avenue for the exchange of ideas between world leaders and the seeking of common ground on important issues, the article expresses concerns over the functioning of some of these multilateral groupings.

Lack of much-needed consensus on major developments/issues:

- Given the massive geo-political churn being observed in recent times and the often different stands taken by different countries based on their national interests, the various intergovernmental organisations and groupings may not be the right place to build consensus on various issues and challenges. Given that there is very little commonality in views or stands of the different countries, cooperation and collaboration between the different countries in multilateral settings is bound to be ineffective.
- The lack of much-needed consensus was very much evident in the recently concluded G7 summit in Germany
 - * The G7 made its own statement on the Ukraine war while keeping aside the views of other member countries like India which was invited to take part in the summit. There was also a perceptible difference in views among the member countries with respect to dealing with Russia for its aggression on Ukraine.
 - * Also, other critical issues such as environment, energy, climate, food security, health, gender equality and democracy found little interest.

Usage of multilateral groupings for national interests:

- There have been numerous examples of different countries using the platform of major multilateral organizations to advance their own interests often overlooking the interests of other members of the grouping.

- At the recently held 14th virtual BRICS summit, China the host country brought in 13 like-minded countries through the back door for a high-level dialogue on global development. This amounts to resorting to unfair means to expand the BRIC grouping with countries considered friendly to China. China seems to think that BRICS would be an extension of the Belt and Road Initiative (BRI), which was designed to dominate the world by getting small and weak countries into a debt trap.
- Also, China has so far resisted India's inclusion in groupings such as the Asia-Pacific Economic Cooperation (APEC) even after India met the criteria of a liberalised economy.

Contradictions within the groupings:

- There continue to remain contradictions between the members of different multilateral groupings. This reduces the scope for common vision and action among the constituent member countries.
- For example in the case of the BRICS grouping, while China and Russia are two permanent members of the Security Council, the other three India, South Africa and Brazil are aspirants to permanent membership of the UNSC. Also, there continue to remain noticeable differences between the economic development levels of the constituent countries.
- Notably, the BRICS grouping had been propped up with the idea of creating a catalyst for an alternative to the existing global architecture and organizations like the Bretton Woods Institutions.

Impact of bilateral differences:

- The bilateral differences between the member countries often affect the effectiveness of the multilateral grouping of which they are members.
 - * The border stand-off between India and China, two important members of BRICS will no doubt undermine the scope for cooperation under the BRICS grouping.
 - * Similarly, the bilateral disputes between India and Pakistan have had a visible negative impact on the functioning of the South Asian Association for Regional Cooperation (SAARC) and have reduced the potential of this organization.

Success of bilateral engagements:

- The limited gains of India at multilateral engagements like the BRICS and G7 summits have been in contrast with the success observed by India in its bilateral engagements with countries like the United Arab Emirates (UAE).
- Despite the limited timeframe that was available for the bilateral meetings between India and UAE, this was much more productive in terms of agreements and outcomes as compared to the much-hyped multilateral summit interactions of the G7.

Nut Graf

Given the increasing misuse of multilateral groupings for vested interests, the glaring lack of consensus on burning issues among the member countries and the limited effectiveness that these multilateral groupings have had, it would be much more prudent for India to work bilaterally with potential allies rather than in multilateral platforms.

Bilateral, regional and global groupings or agreements involving India and/or affecting India's interests.

5. Status of China's Belt and Road Initiative in South Asia

- » Prelims: Major projects under the BRI framework
- » Mains: Challenges to India from the BRI projects in the South-Asian region.

Context:

- At the recently concluded summit of G-7 leaders in Germany, the U.S. along with its allies unveiled the Partnership for Global Infrastructure and Intelligence which is being seen as a counter to China's Belt and Road Initiative (BRI).
- In this context, the article examines the status of various projects under the BRI in different South Asian countries, given the strategic impact of these projects on India's interests in the region.

Background:**Belt and Road Initiative:**

- The Belt and Road Initiative, formerly known as One Belt One Road (OBOR) is a global infrastructure development strategy adopted by the Chinese government in 2013.
- The initiative envisions a Chinese-led investment of over \$1 trillion in partner countries by 2025. For projects under this initiative, China offers loans at commercial interest rates that the receiving countries have to pay within a fixed number of years.
- More than 60 countries have now joined BRI agreements with China. Under this initiative, infrastructure projects are being planned or under construction in Asia, Africa, Europe, and Latin America.

Status of the BRI in South Asian countries:**Pakistan:**

- The China-Pakistan Economic Corridor (CPEC) is the BRI's flagship project and its biggest one in a single country. This project envisions multiple projects involving energy, transport and communication systems.
- Some of the notable projects include the development of the city of Gwadar into a smart port city, a rail project linking Peshawar to Karachi and coal power plants.

- China has pledged \$62 billion in low-interest loans and financing from Chinese state-owned banks and the Asian Development Bank (ADB) for the BRI projects in Pakistan.
- There has been very less progress on the Gwadar Port project. Additionally, there have been protests against the project by the local residents due to the large security force deployment and also the activities of Chinese deep-sea trawlers in the region. Notably, Baloch nationalists have targeted the project and Chinese nationals involved in the project.
- There have been disagreements on the pricing of power generated by the Chinese thermal plants set up under the project.

Sri Lanka:

- There are multiple infrastructure projects under the BRI framework in Sri Lanka, with the most notable ones being the East Container Terminal, Hambantota port, the development of the Colombo International Container Terminal, the Central Expressway and the Hambantota International Airport among others.
- There have been recurrent questions being raised on the financial viability of projects being taken up under the BRI in Sri Lanka. For example, Sri Lanka has had to hand over the Hambantota port to a Chinese state-owned company on a 99-year lease, unable to service the huge loan it had taken to build the port. This aspect has been repeatedly pointed out by the west as China debt-trapping countries through its "predatory loans" and then forcing these countries to cede key assets to China.
- Also, Sri Lanka in the last couple of years has witnessed competition between India and China for projects in the country.

Afghanistan:

- Afghanistan has not comprehensively been brought into the BRI, despite a Memorandum of Understanding (MoU) signed with China in 2016.
- The promised Chinese investments into Afghanistan have not been met and as a result, the projects have not materialised so far and uncertainties around the planned projects have only deepened after the Taliban takeover.

Bhutan:

- Along with India, Bhutan remains the only other country in the region to desist from being a part of the BRI.

Nepal:

- Kathmandu formally joined the Belt and Road Initiative in 2017.
- The most notable projects include the trans-Himalayan rail road from Nepal to China, the construction of roads, the laying of power transmission lines and hydropower projects.
- Despite five years after signing the framework agreement, work has not been started on any of the projects thus far.

Maldives:

- One of the most prominent BRI projects undertaken in the Maldives is the two km long China-Maldives Friendship Bridge.
- There have been public protests in the Maldives against the large borrowing from China.
- The Maldives' current regime has tried to distance itself from the BRI, focusing more on its 'India First' policy.

Bangladesh:

- Bangladesh joined the BRI in 2016.
- The most notable BRI projects in Bangladesh include the China-Bangladesh Friendship Bridges, the development of special economic zones, the Karnaphuli River tunnel project, up-gradation of the Chittagong port, and a rail line between the port and China's Yunnan province.
- Bangladesh has been promised the second-highest investment (about \$40 billion) in South Asia after Pakistan.
- Multiple projects under the BRI framework in Bangladesh have been delayed owing to the slow release of funds by China.

Nut Graf

China's growing collaboration with India's neighbours may not be conducive to India's interests in the long run as this leads to the advancement of China's strategic ambitions in ways that often are not compatible with India's interests. Also with China's increasing influence in South Asia, India is faced with the challenge of competing with China to maintain its prominence in the region.

Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

6. Aftermath of the Russia-Ukraine conflict

- » Prelims: BRICS, Group of Seven (G7), G20 and NATO
- » Mains: Outcomes of the latest summits of different international organisations, India's stand on the current global order and recommendations.

Context:

- Three back-to-back summits of different organisations took place recently, which include the BRICS summit (June 23-24), the G-7 summit (June 26 and 27), and North Atlantic Treaty Organization (NATO) Summit in Madrid (June 29).
- The outcomes of these summits have provided clarity about the stand of various countries on the Russia-Ukraine war.

India's participation in various summits and their outcomes:**BRICS summit**

- The Brazil-Russia-India-China-South Africa (BRICS) Summit hosted by China gained significance as it was the first such multilateral grouping attended by the Russian President since the invasion of Ukraine.
- In the BRICS Beijing Declaration document, each of the members was seen citing different stances on the Ukraine conflict.
- The BRICS economic initiatives, which were applauded by India as "practical", mention various challenges to the western-led sanctions against Russia.
- Further, the New Development Bank (NDB) of BRICS, approved nearly 17 loans worth \$5 billion for Russian energy and infrastructure projects, the Contingent Reserve Arrangement (CRA), and a BRICS Payments Task Force (BPTF) for better coordination between the central banks of the member countries and creating an alternative to the SWIFT payments system.
- At the summit, Russia also proposed creating a global reserve currency based on a basket of currencies and trading in local currencies.
- Russia also assured the BRICS members of providing more oil and coal supplies which will be closely watched by the Western countries.

G-7 Summit

- The Indian PM attended the G-7 (the U.S., the United Kingdom, Canada, France, Germany, Italy, Japan and the European Union) summit of the "most industrialised nations" in Germany as a special invitee with other countries like Argentina, Indonesia, Senegal and South Africa.
- The various statements issued at the summit targeted Russia's aggression on Ukraine and China's economic aggression.
- However, the only documents which were signed by India and other invitees namely "Resilient Democracies" and "Clean and Just Transitions towards Climate Neutrality" did not have any mention of the aggression of Russia or China.

NATO meeting

- India was not a part of the NATO summit, which included the United States's Indo-Pacific treaty allies like Japan, South Korea, Australia and New Zealand.
- In this meeting, the U.S., Canada and European countries decided to increase NATO's actions against Russia.
- They also referred to the "systemic competition" from China as a challenge to NATO's interests, security and value.
- The leaders of countries such as Finland, Georgia, Sweden, Ukraine, and Bosnia Herzegovina attended the meeting which showcased that NATO would no longer consider Russia's concerns about NATO's expansion.

India's stand in the current geopolitical context:

- The outcomes of these summits highlight the fact that there is increasing polarisation between the western allies and Russia-China.
- India's stand on the Ukraine war is the one that does not accept Russia's attack on Ukraine but also does not criticise it either.
- India along with China has increased their purchase of oil from Russia, and also continues to import fertilizers, cement and other commodities from Russia using different means such as paying in the Chinese Yuan to evade the sanctions.
- India is also looking to diversify its defence purchases from Russia and there is a strategic tilt towards the U.S. and Quad partners in the Indo-Pacific.
- India along with Brazil and South Africa has played a balancing role wherein, India in the BRICS Beijing declaration ensured that it does not carry any criticism of the West and also ensured that G-7 outreach documents did not contain criticism of Russia and China.

Recommendations for India:

- Experts feel that this balancing act of India is unlikely to work in the long term and India requires to take some bold decisions.
- It is important for India to take up the role of a leader in the backdrop of increasing polarisation and the disruption due to the Ukraine conflict.
 - * India will take over the G-20 presidency in December 2022 and India must ensure that the G-20 stays intact.
- It is also crucial for India to gather the support of like-minded countries from South America, Africa, the Gulf, and South and Southeast Asia which will help India to voice its position on various issues in international organisations.
- India must try and repeat the role it played during the Non-Aligned Movement (NAM).

Nut Graf

With the increasing polarisation and ever-changing dynamics in the global order due to the war in Ukraine, there is a need for India to bring a balanced outlook to its strategic policy.

Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests.**7. Is NATO stronger after Ukraine invasion?**

- » Prelims: NATO
- » Mains: Impact of the Russia-Ukraine war on the influence of NATO

Context:

- Leaders of the North Atlantic Treaty Organization (NATO), met recently in Madrid, Spain amidst the continuing war in Ukraine. In the meeting, the decision to integrate Sweden and Finland into NATO was taken.

Status of NATO before the Ukraine war:

- NATO appeared to be weakened during the administration of former U.S. President Donald Trump, who had frequently asked the NATO member states to contribute higher amounts to be able to make use of the U.S.'s protective umbrella. This stance had threatened to strike a body blow to the unity and solidarity among the NATO member countries.
- Also, the unilateral decision of the U.S. administration to pull its troops out of Afghanistan from a mostly NATO military mission also undermined the collective spirit of NATO.

Status of NATO in the aftermath of the Ukraine war:

- Russia's war in Ukraine seems to have strengthened the North Atlantic Treaty Organization.
- The NATO allies have in recent times firmly committed to financing the organisation's military needs. Their combined defence investments have jumped by substantial amounts, in part driven by Russia's annexation of Crimea.
- In the context of the prolonged conflict in Ukraine, NATO has announced that it will increase its forces at "high readiness". It is projected to increase the forces at high readiness from 40,000 to over 3,00,000 by mid-2023.
- Finland and Sweden, which have previously maintained a position of neutrality, having had to face strategic insecurity from their neighbours Russia are set to join NATO within a year. This expansion of membership will only further strengthen NATO.

Challenges to the NATO:

- Despite, some firmness to sanction Russia for its aggression against Ukraine, NATO member states continue to face pressures from rising inflation and high energy and food prices even as they have had to finance weaponry and critical war supplies to Ukraine.
- The destabilising economic ripple effects of the war in Ukraine would be hard for the member nations of NATO to bear in case of a prolonged war in Ukraine. This could undermine the unity of NATO.

Nut Graf

Russia's war in Ukraine seem to have strengthened the North Atlantic Treaty Organization as an organization as it has galvanized its member nations to commit more finances and resources to meet the organisation's military needs and has also pushed countries like Sweden and Finland to seek membership. However, a prolonged war in Ukraine along with its economic ripple effects might test the resolve and unity of NATO.

Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

8. G20

- » Prelims: G20- members
- » Mains: Significance of G20, key challenges to G20 and the way forward for India

Context:

- G-20 Foreign Minister's meeting 2022 was held in Bali, Indonesia.

G-20 or the Group of Twenty:

- The G20 is a strategic multilateral grouping that consists of the world's major developed and emerging economies.
- G20 was established in 1999 as a meeting for the finance minister and central bank governors after the Asian Financial Crisis of 1997-1998.
- G20 was formed as the existing geo-economic multilateral order was found ineffective to address the Mexican, Asian and Russian financial crises.
- G20 has no fixed headquarters, and the secretariat is shifted between the countries which assume the Presidency of the grouping each year.
- The G-20 agenda is fixed based on the guidance of Finance Ministers and central Governors which is finalised by a unique system of 'Sherpas', who are special emissaries of G-20 leaders.

G20 members:

List of G 20 Members	
Argentina	Australia
Brazil	Canada
China	France
Germany	India
Indonesia	Italy
Japan	Mexico
Republic of Korea	Russia
South Africa	Saudi Arabia
United States of America	United kingdom
European Union	Turkey

- India has been a member of the G20 since its inception.
- The members are divided into five groups (India is in Group 2, along with Russia, South Africa and Turkey)
- Permanent invitees: Spain, the UN, the IMF, ASEAN, the African Union, etc.
- G20 Troika: Comprises countries that are presiding over the G-20 in the past year, the present year, and next year.

Significance of G20:

- The G20 members represent:
 - * Over 80% of global GDP
 - * About 75% of international trade
 - * Close to 60% of the global population
- G20 members collaborate to address key global issues like international financial stability, inclusive growth, mitigation of climate change, and sustainable development.
- Experts believe that the G20 is said to be a perfect blend of the old world and new world and developed and emerging economies.
- The G20 looks at the world in a more "Global South" perspective compared to other groupings such as OECD (OECD acts as a strategic advisor to the G20 and participates in all G20 meetings)
- The G20 played a crucial role in reviving the economies, lowering trade barriers and implementing economic and governance reforms post the global financial crisis in 2007.

Challenges to G20:

- Changing dynamics in global politics due to the significant rise of China, expansion of NATO and the Russian aggression in Crimea and Ukraine.
- Increasing polarisation of the world in recent years.
 - * At the G20 summit 2022, G-7 countries skipped the welcome reception and concert to protest against the presence of the Russian Foreign Minister.
 - * Further, the Russian Foreign Minister walked out of a meeting when the Western countries criticised Russia for the war in Ukraine
- The issues like increasing geopolitical rivalries, possible dilution of the dollar-based due to the sanctions imposed after the invasion of Ukraine and the state of global economy post the COVID pandemic threaten the functioning of the grouping.
- Experts opine that the recent events in global politics have diluted the credibility of multilateral institutions in the world and have regarded it as G-zero which denotes "Every Nation for Itself".

Way forward for India:

- India is slated to take over the G20 Presidency in December 2022 and host the G20 summit in November 2023 in Pragati Maidan, Delhi.
- In the backdrop of current challenges, India is tasked with ensuring that the G-20 stays intact.
- The government plans to hold 100 preparatory meetings in different parts of the country.
- The government is also planning to conduct events related to the G20 summit in Jammu and Kashmir and Ladakh too despite there being opposition from China and Pakistan

Nut Graf

At a time when there is growing polarization and fragmentation in the global geopolitical with increasing rivalries between the countries, It is important for India to take up the role of a leader and work towards protecting the multilateral institutions like G-20 and ensuring global order and stability.

Important International Institutions, agencies and for a – their Structure, Mandate.**9. MC12**

- » Prelims: WTO; Bali peace clause
- » Mains: Outcomes at the MC12 and concerns for India

Context:

- Recently concluded 12th Ministerial Conference (MC12) of the World Trade Organization (WTO).

Loss for India at the MC12:

- The article expresses concerns over the fact that India found itself on the losing side at the 12th Ministerial Conference negotiations of the WTO, whereas the European Union (EU) and some other developed countries were able to get most of the recently concluded MC12.

TRIPS waiver:

- As against the comprehensive TRIPS waiver demanded by India and South Africa for the production of vaccines, therapeutics and diagnostics, the final agreement pushed by the developed countries block led by EU at the MC12 amounts to only cosmetic simplification in certain procedural aspects of compulsory licensing in patent rules and could be of very little help in ensuring access to quality and affordable vaccines and medicines for all. Hence this outcome represents a big gain for the developed countries and a loss for developing countries like India.

- In October 2020, India and South Africa put forth a proposal seeking to temporarily suspend the protection of intellectual property rights to help aid in the production of vaccines, therapeutics and diagnostics to help overcome the COVID-19 pandemic.

Environment issues:

- The developed economies led by the EU have managed to create a window to pursue negotiations on issues related to trade and environment at the WTO. This could adversely impact the economic growth prospects of developing countries and remains a major issue of concern.

Issue of stock holding:

- The Indian Minister of Commerce and Industry, Piyush Goyal had set the issue of having a permanent solution to public stockholding as being India's top most priority. Despite having the support of more than 80 developing countries, this issue has not found mention anywhere in the ministerial outcome.
- The WTO members have termed food security issue being multi-dimensional and have called for a comprehensive solution. This marks a set-back for India which had been successful to earn a respite in the form of the Bali Peace clause.

Fisheries subsidy issue:

- In the area of fisheries subsidies, India has been able to get only a reprieve of two years to have suitable regulatory mechanisms in place to monitor fish catch and reporting. The failure to do so will result in the prohibition of subsidies to traditional fishermen in India. This would adversely impact the livelihood of fishermen in India.

Taxation of electronic transmission:

- India has also failed in securing the right to raise revenues by taxing electronic transmissions. This robs India of the potential to raise tax revenues.

Recommendations:

- The outcomes of the MC12 are indicative of the difficult path ahead for India at the WTO negotiations. The article calls on India's negotiators to learn lessons from the dynamics at the MC12, and make course corrections to protect India's interest both in the short as well as long terms.

Nut Graf:

The outcomes of the MC12 of the WTO have not been satisfactory for India wherein issues of concern for India were either overlooked and some agreements are detrimental to India's interests.

Effect of Policies and Politics of Developed and Developing Countries on India's Interests

10. Biden in West Asia

- » Mains: U.S.'s West Asia foreign policy and its implications for India.

Context:

- The U.S. President's first official visit to West Asian region.

Details:

Priorities for the foreign policy under the current U.S. President:

- During the visit, the U.S. President primarily sought to strengthen U.S.'s traditional partnerships and alliances in the region, involving Israel and Sunni Arab countries.
- In Israel, the U.S. reiterated its resolve to stop Iran from getting a nuclear bomb, which has been a major demand from Israel in the recent past. The U.S. President during his visit to Palestinian territory though promised aid for Palestine he did not criticise the Israeli occupation of Palestinian territories.
- In Saudi Arabia, the U.S. President met Mohammed bin Salman, the Crown Prince who has been accused of killing Saudi dissident journalist Jamal Khashoggi. This move seems to be indicative of the end of U.S.'s early attempts to isolate Prince Mohammed for his gross human rights violations.
- Speaking at a summit with Arab leaders in Jeddah, The U.S. President assured American allies that the U.S. would not walk away from West Asia. This could leave a power vacuum in the region which China, Russia or Iran would try to fill.

Issues on the back burner:

- As against earlier times when the Israel-Palestine issue dominated U.S.'s foreign policy agenda towards West Asia, in the recent past, the U.S. has shifted focus away from the Palestine question and Palestinians.
- The Iran nuclear talks which received priority during the Presidency of Barack Obama, has not been a priority for the current U.S. administration.

Objectives of U.S. foreign policy:

Regional balance:

- The U.S. wants to guard against any increasing influence of Russia, China in the region either directly or through proxies such as Iran. In this regard, normalisation of ties between Israel and Sunni Arabs has been a major aspect of U.S. foreign policy in West Asia. This was mainstreamed through the Abraham Accords and seems to be wholeheartedly embraced by the new U.S. administration as well.
- This is all the more relevant amid the Iran nuclear talks hitting an impasse and the U.S. seeking to build a bloc against Iran.

Energy security:

- The U.S. led sanctions against Russia has disrupted the oil supply chains globally and has pushed the crude oil prices to historically high prices.
- The U.S. is looking to get Saudi Arabia to produce more oil into the international market, to offset any disruption caused by western oil sanctions on Russia.

Nut Graf

The U.S. foreign policy in West Asia under the new administration is seeking to strengthen U.S.'s partnerships with traditional allies-Israel and Sunni Arab countries in the region and isolating countries such as Iran based on the objective of ensuring regional balance and energy security.

Important International Institutions, Agencies and fora—their structure, mandate.

11. Shanghai Cooperation Organisation (SCO)

- » Prelims: Shanghai Cooperation Organisation (SCO) and Regional Anti-Terrorist Structure (RATS)
- » Mains: The status of SCO in the current geopolitics and its relevance for India

Context

Iran and Belarus are likely to be the two newest additions to the Shanghai Cooperation Organisation (SCO).

Shanghai Cooperation Organisation (SCO)

- SCO was initially started as the "Shanghai Five" in 2001 with Russia, China, Kazakhstan, Kyrgyzstan and Tajikistan as members.
 - * With the induction of Uzbekistan as its member, "Shanghai Five" was renamed as Shanghai Cooperation Organisation (SCO) and came into force in 2003.
 - * India and Pakistan joined SCO in 2017.

- Observer status: Afghanistan, Iran, Belarus and Mongolia
- Aim: Strengthening mutual trust among the member states; promoting their effective cooperation in politics, trade, economy, research and technology, and culture.
- Focus areas: Education, Energy, Transport, Tourism and Environmental conservation.
- The SCO's official languages are Russian and Chinese.
- Key objectives:
 - * Strengthening mutual trust and neighbourliness among the member states
 - * Promoting effective cooperation in politics, trade, the economy, research, technology, culture, education, energy, transport, tourism, environmental protection, and other areas
 - * Making joint efforts to maintain and ensure peace, security and stability in the region
 - * Working towards establishing a democratic, fair and rational new international political and economic order.

Organisational structure of SCO

- SCO has two permanent bodies –
 - * The SCO Secretariat is based in Beijing.
 - * The Executive Committee of the Regional Anti-Terrorist Structure (RATS) based in Tashkent.
- SCO also consists of the Heads of State Council (HSC) which is the supreme decision-making body of the organisation.
 - * HSC meets every year to adopt decisions and guidelines on important issues related to the grouping.
- The Heads of Government Council (HGC) of SCO includes the Prime Ministers and leaders of the countries which also meet annually to decide on SCO's priority areas and multilateral cooperation strategy.
 - * The council also discusses various economic, cooperation issues and the annual budget of the group.
- The Foreign Ministers Council discusses issues related to the day-to-day activities of the grouping, charting HSC meetings and issuing statements on various international problems.

Regional Anti-Terrorist Structure (RATS)

- Regional Anti-Terrorist Structure (RATS) is a permanent organ of the Shanghai Cooperation Organisation (SCO) which was formed in 2004.
- Headquarters: Tashkent, Uzbekistan
- Aim: to help members states combat extremism, terrorism and separatism.
- RATS is engaged in furthering cooperation and ties between member countries on concerns of terrorism, security, drug trafficking, crime and cyberwarfare.
- The Head of RATS is elected for a three-year term. All the member's states also have their own representatives at RATS.

The Stature of SCO in the current geopolitical scenario

- Strength of SCO – The SCO accounts for about 40% of the global population, nearly 20% of the global GDP and 22% of the world's land mass.
- The NATO factor – Experts point out that China and Russia after Russia's invasion of Ukraine are trying to frame the grouping as a counter to the West-dominated NATO.
 - * Hence the grouping has not found its supporters in the West.
- Induction of Iran – This indicates that Iran is seeking closer ties with countries like China and Russia in the wake of pressure from a few of the Western countries through sanctions.
 - * The Iranian leadership was also seen talking about "looking towards the East".
 - * This also applies to Belarus, which supported Russia's aggression in Ukraine.
- Asia – Experts feel that the organisation's strengthening, expansion and efficient functioning will be largely beneficial for Asia as a whole.

India and SCO

- India was conferred observer status in 2005 and was inducted as a full member in 2017.
- The SCO has provided a platform for India to engage with hostile countries like Pakistan and China to discuss various differences.
 - * Examples: The Prime Minister of India held a bilateral meeting with his Pakistani counterpart in 2015 in Ufa.
 - * The Foreign Minister of India got a chance to negotiate a five-point agreement with his Chinese counterpart during the Moscow conference in 2020.

- India's association with the SCO despite being part of the QUAD multilateral grouping highlights India's foreign policy of maintaining "strategic autonomy and multi-alignment".

Nut graf:

The induction of Iran and Belarus as new members of the Shanghai Cooperation Organisation (SCO) has gained a lot of significance as this move shows the increasing international influence and acceptance of SCO.

Global groupings and agreements involving India and/or affecting India's interests.

12. I2U2 Summit

- » Prelims: I2U2 grouping
- » Mains: Key outcomes of I2U2 summit, importance of the grouping and its significance for India

Context

The Prime Minister of India participated in the first-ever I2U2 Virtual Summit.

I2U2

- I2U2 stands for India, Israel, the UAE, and the US and the I2U2 grouping was conceptualised during the meeting of the foreign ministers of the four countries held in October 2021.
- It was initially known as the "International Forum for Economic Cooperation"
- It is also referred to as the "West Asian Quad".
- Aim:
 - * To discuss common areas of mutual interest
 - * To strengthen the economic partnership in trade and investment in respective regions and beyond
- Six key areas of cooperation include: Water, energy, transportation, space, health, and food security.

The first I2U2 Summit and its key outcomes

- The first ever summit of I2U2 was recently held virtually, which saw the attendance of the leaders of the grouping.
- At the summit, the leaders of the grouping agreed to increase joint investment in six key areas of water, energy, transport, space, health and food security.
- The summit aims to modernise infrastructure, explore low carbon development avenues for industries, enhance public health, and support the development of critical emerging and green technologies with the help of private sector capital and expertise.

- * Further, trade and transit infrastructure, clean energy, waste treatment and emerging technologies were identified as priorities.

- The UAE promised a \$2-billion plan for developing integrated food parks in India with the help of private sectors from the US and Israel
- Summit also facilitated an investment commitment for developing a 300-MW hybrid renewable energy project in Gujarat.
- The leaders also discussed various measures to ensure longer-term, more diversified food production and food delivery systems.

Significance of I2U2 grouping

- I2U2 has a huge potential for significant contributions to key sectors such as energy security, food security and economic growth in the Middle East and South Asia region.
- By acknowledging their shared commitment to pluralism and cooperation across sectors, I2U2 could become a platform for cooperation on various other initiatives.
- I2U2 grouping with a pragmatic and development-oriented problem-solving approach can help in peacebuilding across religious and communal divides.
- The grouping through increased economic cooperation will play a key role in containing the increasing Chinese influence in South Asia and the Middle East regions.
- The investments from the grouping will be directed towards maximising crop yields which is the key to addressing the problem of food insecurity in the region.

Significance for India

- I2U2 grouping provides a platform for India to receive sustained mobilization of capital from the UAE, which is further supported by Israeli and American technologies.
- The outcomes of the first summit have been largely beneficial to India including the announcement of:
 - * \$2 billion investment and technological assistance for agricultural initiatives in Gujarat and Madhya Pradesh
 - * Assistance for a hybrid renewable energy project in Gujarat.
- India will get access to the huge markets in the Middle East for its high-tech and highly sought-after goods.
- As India has friendly relations with all other members of the group which includes deep cultural and historical links and strong economic ties, the grouping will be crucial for various sectors such as technology, trade, counter-terrorism, and defence cooperation.

- With the help of the grouping, India will get easy access through the key geographical choke points such as the Suez Canal and Bab-el-Mandeb.
- At a time when China is looking to extend its influence in the region through its Belt and Road initiative, the I2U2 grouping will help India position itself as a reliable, strategic and developmental partner in the West Asian region.

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ART AND CULTURE

GS1- Indian Culture; Salient aspects of Art Forms, Literature and Architecture from ancient to modern times.

1. Raja Ravi Varma

Context:

Raja Ravi Varma's kin seeks Bharat Ratna for him.

Raja Ravi Varma:

- Raja Ravi Varma was an Indian painter and artist of the late 19th century.
- His works are one of the best examples of the fusion of European academic art with a purely Indian sensibility and iconography.
- Raja Ravi Varma was closely related to the Travancore royal family.
- He was acclaimed for his religious depictions of Hindu deities and his works from Puranas and Indian epics.
- His women-centric paintings portray a vast variety of their expressions and costumes.
 - * Some of his popular works include 'Nair Lady Adorning Her Hair', 'Lady in the Moonlight', 'Lady with Swarbat', 'Maharashtrian Lady with Fruits' and 'Malabar Lady with Violin'.
- He learned the basics of painting in Madurai. Varma was patronized by Ayilyam Thirunal, Maharaja of Travancore.
- Rama Swami Naidu taught him water painting and oil painting was taught by Danish portraitist Theodore Jensen.
- In 1894, he started a lithographic printing press in Ghatkopar, Mumbai.
 - * His press mostly produced the oleographs of Hindu gods and goddesses in scenes adapted mainly from the epics and Puranas.

Honours:

- Viceroy Lord Curzon bestowed the Kaisar-i-Hind Gold Medal on Varma in 1904.
- In 2013, the crater Varma on planet mercury was named in his honour.
- The Raja Ravi Varma Award is given by the Kerala government annually to people who show excellence in the field of art and culture.

Salient aspects of Architecture

2. Mahuli group of temples

» Prelims: Mahuli group of temples

Context

- The National Monument Authority (NMA) to submit a report on the comprehensive development of Mahuli group of temples to the Ministry of Culture.

Mahuli group of temples:

- This group of temples is also famously known as Dakshin Kashi and are found in Mahuli, Maharashtra.
- It comprise of five temples belonging to 11th and 12th CE
- The temples are built in Hemadpanthi style of architecture
 - * This style of Architecture is associated with Hemadpant who was minister in Yadava Empire.
- Mahuli is situated at the confluence of rivers Krishna and Venna. -

GI products of India

3. Mayurbhanj's 'ant chutney'

» Prelims: Kai chutney

Context

- In Odisha, research is underway to make a presentation for the Geographical Indications (GI) registry of Kai chutney under the food category.

Kai chutney:

- The Kai chutney is made mostly by the tribes of Mayurbhanj district in Odisha using the weaver ants.
- Weaver ants, *Oecophylla smaragdina*, are abundantly found in Mayurbhanj throughout the year. They make nests with leaves of host trees. Kais feed on small insects and other invertebrates, their prey being mainly beetles, flies and hymenopterans.
- This dish is a rich source of essential nutrients and is known to boost the immune system and is also used a remedial cure to many diseases.

4. Ashadhi Bij

» Prelims: Ashadhi Bij Festival

Context

- PM greets everyone on Ashadhi Bij.

About Ashadhi Bij:

- Ashadhi Bij is an auspicious day for the farming communities in northern India especially Gujarat, Uttar Pradesh and some other places.

- The festival falls on the second day of the Shukla Paksha of the Ashadha month of the Hindu calendar.
- The festival is associated with the beginning of rains in the Kutch region of Gujarat and is celebrated as the Kutchi New Year.
- On this festival, farmers, astrologers and others predict the monsoon to assess which crop would be best in the coming season.

IAS टेबलेट कार्यक्रम

सर्वोत्तम व्याख्यान की
कहीं भी और कभी भी उपलब्धता



500 से अधिक घंटों का प्रारंभिक और मुख्य परीक्षा के पाठ्यक्रम को आवृत करता हुआ व्याख्यान



हमारे मार्गदर्शकों द्वारा प्रत्येक छाल हेतु मार्गदर्शन और व्यक्तिगत प्रतिपुष्टि



मानक पुस्तकों सहित समग्र और अद्यतन अध्ययन सामग्री



पुनरीक्षण नोट्स के साथ चर्चित मुद्दों पर सप्ताह में दो बार लाइव वेबिनार व्याख्यान



साप्ताहिक वेबिनार, चर्चित मुद्दे, समसामयिकी पत्र /पत्रिका और प्रैक्टिस सेट का छाल पोर्टल उपलब्ध

SCIENCE AND TECHNOLOGY

Issues relating to intellectual property rights

1. India's patent law safeguards under fire

- » Prelims: Patent Laws in India
- » Mains: Critical evaluation of the recommendations by the Economic Advisory Council (EAC) to reform the Indian Patent system.

Context

- The Economic Advisory Council (EAC) to the Prime Minister has recommended new reforms to the Indian Patent system.

What is a Patent?

- According to the World Intellectual Property Organization (WIPO), "A patent is an exclusive right granted for an invention, which in the process provides a new way of doing something, or offers a new technical solution to a problem".
- To get patent rights, technical information about the invention must be disclosed to the public in a patent application.

Patent laws in India:

- Patent laws in India are defined by the provisions in the Patents Act, 1970.
- The Office of the Controller General of Patents, Designs and Trademarks (CGPDTM) famously known as the Indian Patent Office working under the Department for Promotion of Industry and Internal Trade (DPIIT) is the agency that administers the Indian law of Patents, Designs and Trademarks.
- The Act was amended by the Patents (Amendment) Act, 2005 under which:
 - * Lawmakers from all political parties brought changes into the Indian patent law to ensure that the Indian patent office did not grant monopolies on old science or for common compounds already used in the public domain.
 - * It prevents drug manufacturing firms from indulging in "evergreening" which is a common strategy employed by the firms to obtain separate patent monopolies relating to the same medicine by extending the term of a granted patent that is about to expire
 - * The amended act also provided that any individual would be permitted to raise a "pre-grant opposition" anytime before the patent is granted or rejected.

Recommendations by the Economic Advisory Council (EAC):

- Hiring more Patent Officers
 - * Currently, the patent offices in India are understaffed.
 - * India has only about 850 officers but has over 1,60,000 pending patent applications.
- Use of advanced technologies like Artificial Intelligence (AI) to simplify the process at the Indian Patent Office and to become globally competitive.
- Fixing a timeline of just six months for "pre-grant opposition" proceedings from the date of its publication

The significance of "pre-grant opposition":

- As the Indian Patent Offices get over 50,000 patent applications annually, the officers miss certain critical information about the patent application a few times.
 - * A study on pharmaceutical patents in India showed that 7 out of 10 patents are granted in error by the Indian Patent Office.
- Hence an efficient pre-grant opposition system acts as an additional administrative layer of scrutiny that prevents errors in the grant of patents.
- A first pre-grant opposition was filed by the Cancer Patient Aid Association (CPAA) in 2005 against a patent application of Imatinib Mesylate (Gleevec) which is a life-saving anti-cancer drug.
 - * CPAA argued that this patent application claimed a salt form of old medicine which was a common practice within the pharmaceutical industry, and should not be considered patentable.
 - * Based on this, the patent office rejected the patent, and the move was upheld by the High Court and the Supreme Court.
 - * The rejection of the patent rights reduced the prices of this crucial drug from about ₹14 lakh/patient/year to about ₹40,000/patient/year from generic manufacturers.
- Various generic manufacturers and people infected with HIV, DR-TB, and viral hepatitis have filed pre-grant opposition to ensure that quality and affordable generic drugs can be procured through various health programmes.
- In 2006, PLHIV networks raised a pre-grant opposition against a patent application by Glaxo Group Limited (GSK) for Combivir on a fixed-dose combination of two AIDS drugs, zidovudine/lamivudine.
 - * The drug manufacturing firm withdrew its patent application in India and several other countries after the patent oppositions highlighted that

the patent claims did not account for a new invention as it just used the combination of two existing drugs.

- The reduction in the prices on account of the rejection of patent claims has resulted in extending antiretroviral treatment to lakhs of people in low and middle-income countries.

Criticism of the recommendations of fixing a timeline for pre-grant oppositions:

- Fixing a timeline and putting limits on a window period for pre-grant opposition will make it difficult to challenge fraudulent patent applications on life-saving drugs and vaccines.
- It also hinders the ability of the public to go through the information in patent applications and identify loopholes and errors in the claims.
- Further, the reduction in the timeline for the pre-grant oppositions will not translate into speedy processing of the pending patent claims or reducing pendency.
 - * Instead, these pre-grant oppositions help provide critical information to the officers and hence speed up the process.

Nut Graf

The pre-grant opposition provision in the Indian patent system has played a key role in ensuring the speedy and efficient processing of patent claims. The efforts to impose a timeline on these pre-grant oppositions will adversely impact the scrutiny of patent applications.

Awareness in the fields of Space

2. The search for dark matter

- » Prelims: Dark matter and dark energy

Context:

- The dark matter detector experiment named LUX-ZEPLIN (LZ) in South Dakota in the U.S. has been in the news. It is believed to be the most sensitive dark matter detector in the world currently.

Dark matter and dark energy:

- Many physicists strongly believe that all the atoms and light in the universe together make up less than five percent of the total contents of the cosmos. The rest is believed to be composed of dark matter and dark energy.
- Dark matter is a hypothetical form of matter. Dark matter is called "dark" because it does not appear to interact with the electromagnetic field, which means it does not absorb, reflect, or emit electromagnetic radiation (like light) and is, therefore, difficult to detect. The word "matter" is attributed to it because they possess mass like normal matter and interact through gravity.
- Dark energy is a theoretical form of energy postulated to act in opposition to gravity.

Why is dark matter difficult to detect?

- Dark matter is made up of particles that do not have a charge. Hence the dark matter does not interact through electromagnetic interactions.
- The gravitational force exhibited by dark matter is yet to be fully understood and is also extremely weak.
- Hence, dark matter becomes rather elusive to detect.

Proof/evidence for dark matter:

- There is strong indirect evidence for dark matter, and this evidence is reflected at various levels (or distance scales).
 - * Smaller distance scale – The rotation pattern of galaxies is indicative of the presence of dark matter in the galaxy as no other explanation is possible to explain the varying speeds of rotation of the different stars at different positions of the galaxy. Other lines of evidence include observations in gravitational lensing along with astronomical observations of the observable universe's current structure. The filamentous nature of the universe is also indicative of the existence of dark matter.
 - » Gravitational lensing occurs when a massive celestial body — such as a galaxy cluster — causes a sufficient curvature of spacetime for the path of light around it to be visibly bent, as if by a lens. The body causing the light to curve is accordingly called a gravitational lens.
 - * Larger distance scale – The formation of bullet clusters of galaxies through the merging of two galaxy clusters also seems to be indicative of the existence of dark matter.
- Dark energy explains the driving force behind the accelerated expansion of the universe. Recent studies into cosmic microwave background have also been indicative of the presence of dark energy.
 - * The cosmic microwave background (CMB) is leftover radiation from the Big Bang or the time when the universe began. The CMB is faint cosmic background radiation filling all space.

Current efforts to detect dark matter:

- Given the convincing indirect observations and calculations pointing towards the existence of dark matter and dark energy, experiments have been set up to decisively detect dark matter particles.

Candidates for dark matter particles:

- Neutrino
 - * A neutrino is a subatomic particle that is very similar to an electron but has no electrical charge and a very small mass, which might even be zero. Neutrinos are one of the most abundant particles in the universe.

- Supersymmetric partner of the Z boson
 - * Z-boson is a neutral elementary particle.
- Axions
 - * Axions are a boson and a condensate of dark matter.

Nut Graf

Dark matter and dark energy dominate the structure and evolution of the universe. Hence a clear understanding of these is necessary for a better understanding of our cosmos.

Awareness in the fields of Space

3. Space sustainability

- » Mains: Mains: Sustainability in outer space and India's contribution

Context:

- Recently, the U.K. hosted the fourth summit for Space Sustainability in London in collaboration with the Secure World Foundation.

Plan for Space Sustainability:

- The U.K. hosted the fourth summit for Space Sustainability in London and announced a new 'Plan for Space Sustainability'
- The U.K. Space Sustainability plan mentions four primary elements:
 - * To review the regulatory framework of the U.K.'s orbital activity;
 - * To emphasize international engagement on space sustainability;
 - * To try and develop safety and quality-related metrics that quantify the sustainability of activities;
 - * To induce additional funding for active debris removal.
- Aims of the Plan:
 - * To "set a global commercial framework for the insurability, the licensing and the regulation of commercial satellites."
 - * To reduce the cost for those who comply with the best sustainability standards and thus encourage a thriving ecosystem for the industry.

What does sustainability in outer space mean?

- In the last decade, the Earth's orbital environment has more than quadrupled. The intricacy of missions and slot allocation concerns rise as the cost of tasks decreases and the number of participants increases.
- With the growth of huge constellations and complicated satellites, there is an increased danger of collisions and radio frequency interference.

- Long-term sustainability focuses on space research and technology development to enable satellite reuse and recycling at every level. The proposal calls for active debris removal and in-orbit servicing.
- Because outer space is seen as a common natural resource, the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) issued a set of 21 non-binding rules in 2019 to ensure the long-term viability of space operations.

United Nations Committee on the Peaceful Uses of Outer Space (COPUOS)

- In 1958, the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) was founded.
- The UN General Assembly established it as an ad hoc multinational committee immediately after the launch of the first artificial satellite, Sputnik I, in 1957. India was one of the committee's 18 founding members.
- Its primary responsibility is to study and promote international collaboration in the peaceful uses of outer space.

Concerns with sustainability in outer space:

- One of the most pressing concerns of space sustainability is orbital congestion.
- It is a direct threat to the mission's operations and safety, and it is likely to result in legal and insurance-related problems.
- Another significant concern is space debris.
- After completing a mission, the 'end-of-life protocol' requires space objects to be transferred to a cemetery orbit or a low altitude. In the long term, neither strategy is viable.
- Solar and magnetic storms are also possible threats to communication infrastructure.

India's contribution to space sustainability:

- India is home to potential start-ups such as Agnikul and Skyroot, who are working on tiny payload launch vehicles, and Dhruva Space, which is working on high-tech solar panels for satellites and satellite deployers.
- India is well on its way to developing a subsystem that will solve global sustainability concerns.
- To monitor space debris, the Indian Space Research Organization (ISRO) has launched 'Project NETRA'.
- The domestic monitoring system would offer real-time information on the state of debris, which would benefit future planning for space asset protection.
- At the 2+2 discussion in 2022, India and the United States struck a new accord for monitoring space objects.
- Controlled anti-satellite weaponry (ASAT) testing and the possibility of collisions must be handled cooperatively.

- ISRO is working on a docking experiment termed 'SPADEX' to allow in-orbit servicing. It considers docking a satellite on an existing satellite, providing assistance in refuelling and other in-orbit services, and boosting a satellite's functionality.

Way Forward:

- Today, any institution (public or private) with the required finances and technology may invest in space.
- Sustainable space practices would immediately help to lessen orbital overpopulation and collision risk while also fostering future innovations.
- The Plan for Space Sustainability, which involves private enterprises, is a timely move in the natural flow of progress. This might be used as a model for future space programmes.
- Many of the sustainability strategies are resource-intensive and costly for medium- and small-scale space operations.
 - * In this instance, private attempts to improve sustainability standards would make access more difficult, offering an unfair advantage to programmes with steady finances.

Nut Graf

In line with the U.K. space programme, the Indian space mission hopes to drive the sustainability factor internationally and provide an opportunity for the private sector to develop models that enhance operations' safety and reduce debris footprint.

Achievements of Indians in science & technology; indigenization of technology and developing new technology.

4. The private sector boost in India's space industry

- » Mains: Role of the private sector in India's space industry

Context:

- Recently, the Principal Scientific Adviser to the government of India hinted at the new space policy to boost private sector participation in India's space sector.

Importance of space sector development in India:

- Aids in strengthening connectivity and addressing climate-related events/disasters through a more secure and effective means.
 - * Satellites provide more precise and reliable information on weather forecasts and evaluate long-term trends in the climate and habitability of a region. Governments can develop policies and action plans based on long-term data provided by these satellites to help farmers and dependent industries.

- » They provide real-time monitoring and early-warning solutions against natural disasters such as earthquakes, tsunamis, floods, wildfires, mining, etc.

- Satellite imagery helps in identifying patterns of land use, land cover, settlements, and road and rail networks.
- An independent regional navigation satellite system called NavIC – Navigation with Indian Constellation is designed to provide position information in the Indian region and 1500 km around the Indian mainland.
- Real-time tracking and high-resolution imaging capability can also serve multiple purposes in defense.
 - * For example, the Cartosat-2 satellite helped in planning and executing military operations such as 'surgical strikes' across the LoC in 2016 and the operations across the Manipur-Myanmar border in 2015.
- Satellite communication can connect remote areas where other conventional means would require heavy complementing infrastructure.
 - * As per the World Economic Forum, satellite communication can help connect 49% of the world's unconnected population.

Space sector as a market:

- The space sector is an integration of the aerospace, IT hardware and telecom sectors. It is thus argued that investment in this arena would foster positive carryover effects to other sectors as well.
- Satellite communications are among the major categories for investment in the space technology sector as they are used to facilitate telecommunication services.
- Spacecraft and equipment manufacturing are some of the other areas of investment with vast potential.

Where does India stand in the global space market?

- In 2021, India stands 6th internationally in the space industry having 3.6% of the world's space-tech companies.
 - * The top five countries with companies in the space-tech ecosystem are:
 - » The U.S. (56.4%), U.K. (6.5%), Canada (5.3%), China (4.7%) and Germany (4.1%).
- The Indian Space Industry aspires to grow to a valuation of \$50 billion by 2024 from \$7 billion in 2019.
- India's prominent feature in the space industry is its cost-effectiveness.
 - * India is the first country to have reached Mars' orbit in its first attempt and at \$75 million, way cheaper than Western standards.

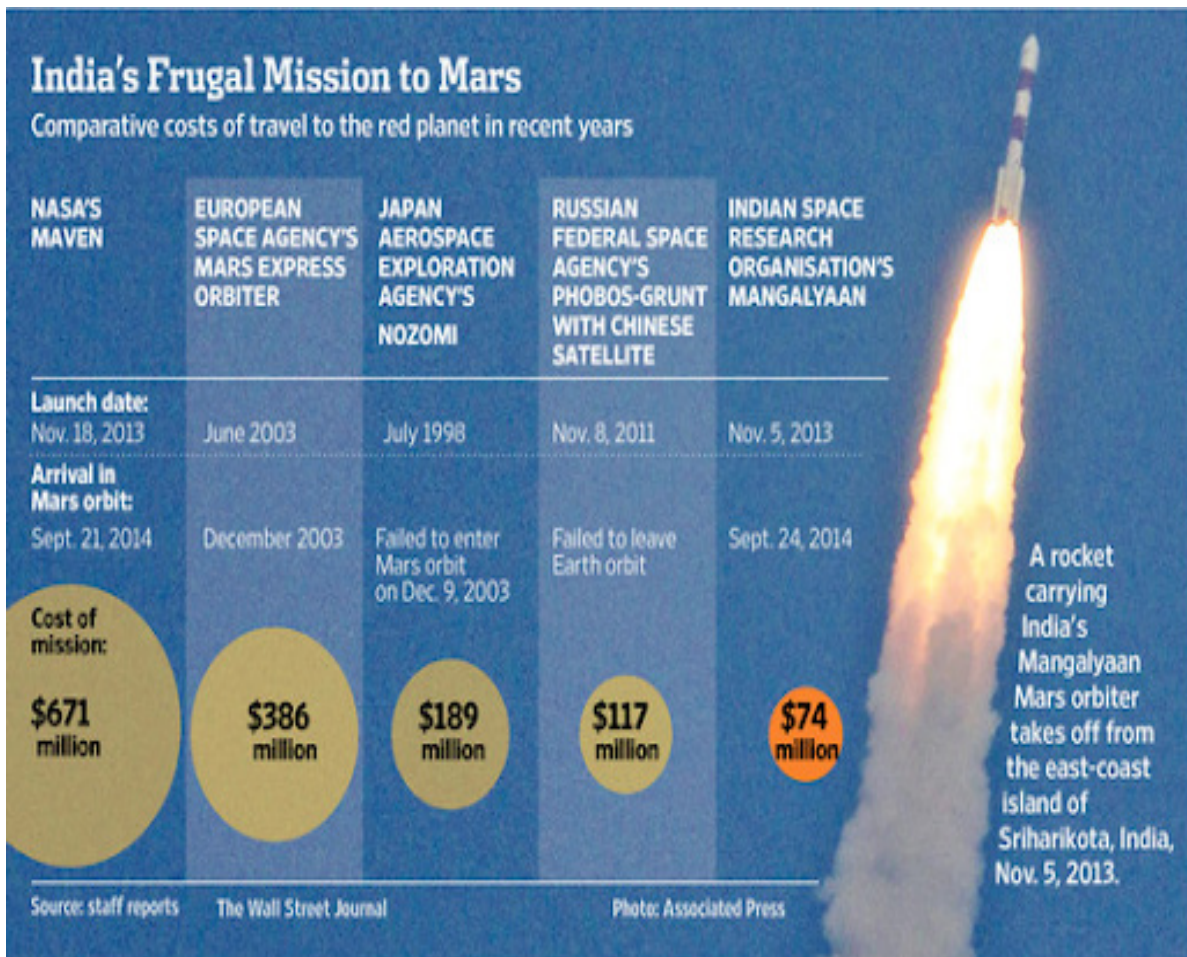


Image Source: Wall Street Journal

- Most companies in the sector, globally, are involved in the manufacture of spacecraft equipment and satellite communications.
- As per the Union Ministry of Science and technology, a total of 60-odd start-ups are registered with the Indian Space Research Organisation (ISRO) and a majority of them were dealing in projects related to space debris management.

How is the private sector's involvement regulated in India?

- The U.S. and Canada were the highest receivers of space-related investment in 2021.
- The Union government has announced various programs enabling more private players in the space sector to provide numerous services.
 - * The Union government established the Indian National Space Promotion and Authorisation Centre (IN-SPACe) in June 2020.
- NewSpace India Limited (NSIL) was created in March 2019 as a Public Sector Undertaking of the Government of India and commercial arm of ISRO under the Companies Act 2013.

- * The main objective of NSIL is to scale up industry participation in Indian space programmes.
- * NSIL works on capacity building of local industry for space manufacturing.
- * It is different from ISRO's existing commercial arm Antrix Corporation which handles ISRO's commercial deals for satellites and launch vehicles with foreign customers.

Conclusion:

- Timely reforms and complementing policies with the regulatory environment should be the focus to provide a "level playing field" to private companies in space-based services and satellite launches.

Nut Graf:

Participation of the private sector, in the long term, is believed to help spur investment and expertise in the space realm which is capital-intensive and demands high technology.

Science and Technology developments and their applications and effects in everyday life.

5. New material discovered can convert infrared light to renewable energy

» Prelims: Infrared light – Properties

Context:

- Scientists have discovered a novel material that can emit, detect, and modulate infrared light with high efficiency making it useful for solar and thermal energy harvesting and for optical communication devices.

Details:

- Researchers from Bengaluru's Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous institute of the Department of Science and Technology (DST) have discovered a novel material called single-crystalline scandium nitride (ScN) that can emit, detect, and modulate infrared light with high efficiencies.
- They utilized a scientific phenomenon called polariton excitations that occur in tailored materials when light couples with either the collective free electron oscillations or polar lattice vibrations to achieve this feat.
- They have carefully controlled material properties to excite polaritons (a quasi-particle) and achieve strong light-matter interactions in single-crystalline scandium nitride (ScN) using infrared light.
- Significance:
 - These exotic polaritons in the ScN can be utilized for solar and thermal energy harvesting.
 - They are also compatible with modern complementary-metal-oxide-semiconductor (CMOS) or Si-chip technology and, therefore, could be easily integrated with on-chip optical communication devices.

Achievements of Indians in Science & Technology.

6. Acharya Prafulla Chandra Ray

» Prelims: Contributions of Acharya Prafulla Chandra Ray

Context:

- International Conference on Acharya Prafulla Chandra Ray.

About Acharya Prafulla Chandra Ray:

- Acharya Prafulla Chandra Ray (1861-1944) is also known as the 'Father of Indian Chemistry'.
- He was one of the first modern Indian chemists and established Bengal Chemicals & Pharmaceuticals, India's first pharmaceutical company.
- He was also a noted philanthropist and educationist who was knighted by the British in 1919.

- He discovered mercurous nitrite in 1896. This stable compound spurred a lot of research on metal nitrites and hyponitrites, ammonia nitrites, and organic amines.
- He also proved that the pure ammonium nitrite is indeed stable by bringing to pass a lot of experiments and explained that it can be sublimed even at 60 °C without decomposition.
- He helped establish the Nagarjuna Prize to be awarded for the best work in chemistry.
- Some of his noted works
 - A History of Hindu Chemistry from the Earliest Times to the Middle of Sixteenth Century (1902)
 - Saral Prani Bijnan (Simple Science) (1902)
 - Life and Experience of a Bengali Chemist (1932)

Awareness in the fields of Space

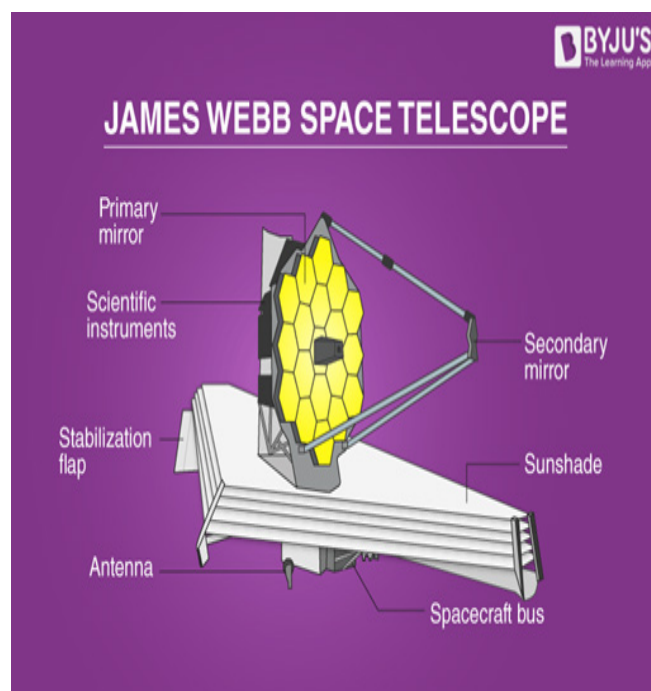
7. James webb telescope observations

- » Prelims: About James Webb Space Telescope (JWST), SMACS 0723, NGC 3324, Southern Ring Nebula, Stephan's quintet, WASP-96 b3
- » Mains: Significance of JWST and its observations

Context:

The release of images by NASA captured by the James Webb Space Telescope (JWST)

James Webb Space Telescope (JWST)



- The James Webb Space Telescope (JWST) or also called Webb is the largest infrared telescope which was mainly designed to conduct infrared astronomy.
- The telescope was launched in an Ariane 5 rocket from French Guiana in 2021.

- It is the largest and most powerful orbital observatory ever launched. It will offer scientists the opportunity to observe galaxy evolution, the formation of stars and planets and exoplanetary systems.
- Webb is the successor of the Hubble telescope.
- It is an infrared spectrum-based telescope.
- It is a part of an international collaboration between NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA)
- The Goddard Space Flight Center of NASA is managing the development effort.
- The telescope is expected to help in the study of aspects like the phases of the history of the Universe, the Big Bang, the formation and evolution of the solar system.

Comparison between James Webb and Hubble Telescope

James Webb and Hubble compared

JAMES WEBB	HUBBLE
Launch 2021	Launch 1990
Lifetime 10 years	Lifetime 32 years
Mirror size 6.5m	Mirror size 2.4m
Mass 6,200 kg	Mass 12,200kg
Operating temperature . . . -230C	Operating temperature . . . 20C

Source: Nasa



- JWST is nearly double the size of the Hubble Telescope (13m long), which is roughly half the Hubble's weight (6,200kg).
- JWST's gold-coated mirrors have a cumulative diameter of 605cm, more than twice the diameter of Hubble (240cm).
- Hubble captures images from the range of visible, ultraviolet and near-infrared spectra. On the other hand, the James Webb Space Telescope will detect objects in the range of long-wavelength normal red light and mid-infrared spectrum.
 - * This will allow the detection of high-redshift celestial bodies that are too faint, distant, and old.

- The James Webb Space Telescope is fundamentally designed for wider infrared astronomy. It can observe objects which are 100 times fainter than the threshold of the Hubble telescope.

Images taken by JWST

SMACS 0723 cluster of galaxies



- SMACS 0723 is said to be a cluster of galaxies that is nearly 5.12 billion light-years away and is located in the direction of the southern constellation of Volans.
- The deep field images of the SMACS 0723 cluster of galaxies taken by the JWST have ones that date back to the times when the first stars were born.
- One of the images appears to be 4.6 billion years ago, which is said to be the time when the Sun and the Earth evolved.

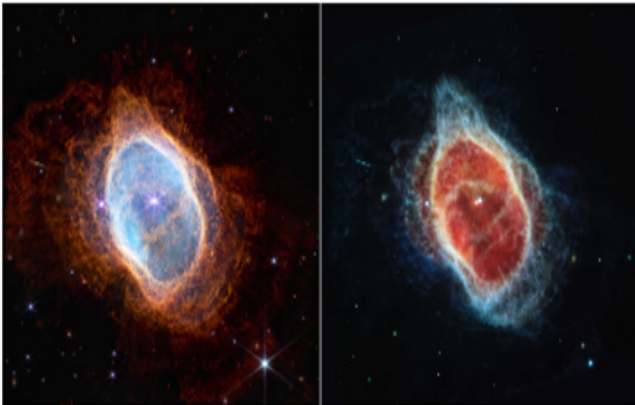
NGC 3324



- The JWST has captured an image of NGC 3324 (interstellar gas cloud) which is situated in the direction of the Carina Nebula about 7,600 light-years from Earth.

- * The Carina Nebula, which is also called the Eta Carinae Nebula, is a large, complex area of bright and dark nebulosity in the constellation Carina, located in the Carina-Sagittarius Arm of the Milky Way galaxy. It is considered to be about 8,500 light-years from Earth.
- NGC 3324 is said to be a home to many more massive and young stars than the Sun.
- The image of the edge of the NGC 3324 is called the "Cosmic cliff" which appears in the shape of mountains and valleys.

Southern Ring Nebula



- JWST has also revealed images of the Southern Ring planetary nebula (NGC 3132) which is also called the Eight-Burst Nebula.
 - * Planetary nebulae are the shells of gas and dust ejected from dying stars.
- It is situated about 2,500 light years away from the earth in the constellation Vela.
- The image captured by JWST shows the consecutive waves of expelled shells.

Stephan’s quintet



Context:

- Stephan’s Quintet is a visual grouping of five galaxies and these five galaxies of Stephan’s Quintet are also together known as the Hickson Compact Group 92 (HCG 92).
- It is situated in the constellation Pegasus and around 290 million light-years away from Earth
- It was discovered by the French astronomer Édouard Stephan in 1877.
- Four of these galaxies are close together and are caught up in a cosmic dance.

WASP-96 b3

- WASP-96 b is a hot gas giant exoplanet that orbits a Sun-like star which is about 1500 light years away from Earth situated in the constellation Phoenix
- The planet orbits extremely close to its star and completes one orbit in less than 3 and half Earth-days.

Significance of JWST and its observations

- JWST with its sharp vision, large light-collecting area and better ability to observe invisible infrared regions is expected to help expand the ability to understand the cosmos.
- The JWST collects more photons than any other infrared telescopes and can even observe and detect even the faintest flicker from the most distant regions of the cosmos.
- JWST’s Near-Infrared Camera (NIRCam) provides stunning images with rich details about the features of the objects. This ability of JWST helps reveal details about celestial objects that were previously unknown to astronomers.
- The observations of JWST will act as a foundation for astronomers to use the JWST data and study further about celestial phenomena.
- The spectroscopic observation of JWST reveals that there is a significant amount of water vapour present in the WASP-96 b’s atmosphere but due to severe heat, WASP-96 cannot host life.
 - * This same technique can be used by astronomers to examine other exo-planets that are in the habitable zone of the central star as detecting water vapour, hydrocarbons, methane, etc. indicate the presence of life.

Nut graf:

The spectroscopic observations and images captured by the JWST are said to be a milestone in the history of astronomy as it provides deeper insights into the history and the evolution of the universe.

DEFENCE AND INTERNAL SECURITY

Various Security Forces and Agencies and their Mandate.

1. National Investigation Agency

- » Prelims: National Investigation Agency- Scheduled offences, jurisdiction and powers

Context:

- The National Investigation Agency (NIA) has taken over the probe into the killing of tailor Kanhaiya Lal in Rajasthan's Udaipur. Also the Union Home Ministry has handed over the investigation of a similarly executed murder of pharmacist Umesh Kolhe at Amravati in Maharashtra to the NIA.

National Investigation Agency:

- The National Investigation Agency (NIA) is the primary counter-terrorism agency of India, functioning under the Ministry of Home Affairs, Government of India.
- It is headquartered in New Delhi and has branches in Hyderabad, Guwahati, Kochi, Lucknow, Mumbai, Kolkata, Raipur, Jammu, Chandigarh, Ranchi, Chennai, Imphal, Bengaluru and Patna.

Establishment of NIA:

- The 26/11 terror attack in Mumbai revealed the failure of intelligence and ability to track such activities by existing agencies in India and the then government contemplated the need to have a specific body to deal with terror related activities in India.
- NIA came into existence with the enactment of the National Investigation Agency Act 2008 by the Parliament of India.

Mandate of the NIA:

- The NIA is mandated to investigate all the offences affecting the sovereignty, security and integrity of India, friendly relations with foreign states, and the offences under the statutory laws enacted to implement international treaties, agreements, conventions and resolutions of the United Nations, its agencies and other international organisations.
- The agency is empowered to deal with the investigation of terror related crimes and their possible links with crimes like smuggling of arms, drugs and fake Indian currency and infiltration from across the borders.
- NIA is empowered to deal with the scheduled offences which include the following:
 - * Explosive Substances Act
 - * Atomic Energy Act
 - * Unlawful Activities (Prevention) Act
 - * Anti-Hijacking Act
 - * Suppression of Unlawful Acts against Safety of Civil Aviation Act

- * SAARC Convention (Suppression of Terrorism) Act
- * Suppression of Unlawful Acts Against Safety of Maritime Navigation and Fixed Platforms on Continental Shelf Act
- * Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act
- * Relevant offences under the Indian Penal Code, Arms Act and the Information Technology Act.
- * Offences under the Narcotic Drugs and Psychotropic Substances Act that are connected to terror cases.

Jurisdiction of NIA:

- The law under which the agency operates extends to the whole of India and also applies to Indian citizens outside the country. This includes Indians in the service of the government wherever they are posted.
- Additionally, persons on ships and aircraft registered in India wherever they may be; persons who commit a scheduled offence even outside India against the Indian citizen or affecting the interest of India can be investigated by the NIA.

Taking up of cases by the NIA:

- State governments can refer the cases pertaining to the scheduled offences to the Central government for NIA investigation. After due assessment, the union government can direct the NIA to take over the case.
- Also the Union government is empowered to suo motu direct the NIA to take up probe of a scheduled offence.

Powers of the NIA:

- State governments are required to extend all assistance to the NIA with respect to any investigation being undertaken by the NIA.
- NIA has the power to search, seize, arrest and prosecute those involved in the scheduled offences.

Nut Graf:

The National Investigation Agency (NIA) is the primary counter-terrorism agency of India empowered to deal with the investigation of terror related crimes.

Money-laundering and its prevention

2. Prevention of Money Laundering Act

- » Prelims: Prevention of Money Laundering Act (PMLA)
- » Mains: The key provisions of PMLA, Supreme Court’s Judgements and their implications

Context:

- The Supreme Court’s verdict on the provisions of the Prevention of Money Laundering Act.

Prevention of Money Laundering Act:

- Prevention of Money Laundering Act (PMLA) was enacted in 2002.
- The key objective of the Act is to prevent money laundering and to enable government agencies to confiscate the properties or assets derived from it.
- The Act also provides for combating the channelising of money into illegal activities and economic crime.
- The Enforcement Directorate (ED) is responsible for investigating offences under the PMLA.

Supreme Court’s views:

On ED’s power under PMLA
 An upshot of the judgment by the Supreme Court on the validity of certain provisions under the Prevention of Money Laundering Act

- The offence of money laundering is as heinous an offence as terrorism
- Section 3 (definition of money laundering), Section 24 (reverse burden of proof), and Section 5 (attachment of property) to stay
- Stringency in granting bail under the Act is legal and not arbitrary
- It is not mandatory to give an Enforcement Case Information Report (ECIR) in every case as it was not an FIR
- The statements made to ED are considered admissible
- Provision of attachment of property of accused as proceeds of crime ‘balances’ the interests of the accused and the State
- The question of enactment of PMLA amendments through the Money Bill route is to be decided by a larger Bench

- Upholding these stringent amendments, the court held that “money laundering is an offence against the sovereignty and integrity of the country and is no less a heinous offence than the offence of terrorism”.
- The SC bench also said that “PMLA is a unique legislation which was enacted as a result of international commitment to deal with the menace of money laundering of proceeds of crime having transnational consequences and on the financial systems of the countries”.
- On the question of provisions of the act being violative of the “right against self-incrimination” (Article 20), the court said that “the statements of the accused were recorded as part of an “inquiry” into the proceeds of

crime and an individual cannot claim right against self-incrimination at a summons stage.

- Further, the petitioners argued that under PMLA the ED could arrest an individual without showing a copy of the Enforcement Case Information Report (ECIR) which is against the “due process of law” and the “right to be informed” about the grounds of arrest, to which the court said that:
 - * The ECIR is an internal document and disclosing its contents to an accused may have a “deleterious impact” on the case and the accused will always be “informed” about the grounds of his arrest.
- On the arguments against the stringent bail provisions of the Act, the court said that “money laundering was an aggravated form of crime the world over and a stringent law is required to create a deterrent effect”.

Implications of the SC’s judgement:

- The recent Vijay Madanlal case judgement has been made by a Supreme Court bench composed of three judges which thereby overrides the decision made by the division bench of the Supreme Court in the Nikesh Shah case.
- By upholding the twin conditions under Section 45(1) of the PMLA, the SC has made the provisions of getting bail under PMLA very difficult and almost impossible.
- The two conditions for bail mandate the Court to make a call on the potential guilt of the offender based on the materials provided by the accused in the application for bail and the following opposition of the public prosecution.
 - * This provision overruled the conventional principles of “presumption of innocence” which says that an “undertrial is to be considered innocent until proven guilty”.
 - » This principle is crucial for protecting and ensuring the principles of due process of law enshrined in the Constitution.

Shortcomings of the Judgment:

- The method of introduction of the amendments through Money Bills itself is contested.
- Money laundering has transnational consequences negatively affecting the financial systems and sovereignty of the countries.
- Concentrating completely on India’s commitment to the international community on strengthening the domestic legal framework for combating money laundering might lead to the violation of fundamental rights.
- However, experience suggests that money laundering in the Indian context is linked to offenses that are attached to the Act as a schedule.
 - * These scheduled offences ought to be ideally limited to grave offences such as narcotics, terrorism, corruption, smuggling and serious forms of tax evasions. However, in practice, the

list contains offenses such as forgery, fraud, kidnapping, cheating and even copyright and trademark infringements.

- The provision of disclosing and submitting documents, and then signing them under the pain of prosecution can be seen as a violation of fundamental rights under Article 20(3).
- Misuse of ED's power by the executive to target opponents in future might be seen as the judiciary's failure to protect personal liberty from executive excess.

Way Forward:

- ED should use these enhanced powers with greater responsibility without any executive intervention.
- Judiciary along with ED shall work together to expeditiously clear the cases and improve the conviction rate.

Nut Graf

While there are arguments about the provisions and the punishments mentioned under the PMLA being harsh and arbitrary, the Supreme Court has held that the provisions of the Act provide a balancing arrangement between the interests of the accused and the state and the stringent laws are necessary to curb offences such as money laundering and terrorism.

Various Security forces and agencies and their mandate

3. Central Armed Police Forces

- » Prelims: Facts about Central Armed Police Forces (CAPF)
- » Mains: Major challenges faced by the CAPF personnel and key recommendations

Central Armed Police Forces (CAPF):

- Central Armed Police Forces were formerly called Paramilitary Forces. However, the Ministry of Home Affairs in March 2011, adopted the uniform nomenclature 'Central Armed Police Forces' to avoid confusion.
- CAPF refers to the security forces of seven central armed police organisations of India working under the administrative control of the Union Ministry of Home Affairs.
- CAPF includes:
 - * Assam Rifles
 - * Border Security Force (BSF)
 - * Central Industrial Security Force (CISF)
 - * Central Reserve Police Force (CRPF)
 - * Indo-Tibetan Border Police (ITBP)
 - * National Security Guard (NSG)
 - * Sashastra Seema Bal (SSB)

- Each of these forces performs a separate function and is led by an IPS officer with Assam Rifles being an exception as it is led by an Army officer of the rank of Lieutenant General.

Assam Rifles

- The Assam Rifles was established in 1835 and is considered the oldest of all paramilitary forces and other CAPF.
- Assam Rifles play a key role in handling counterinsurgency and border security operations in North East India.
- It is the only paramilitary force with a dual control structure
- The administrative control of Assam Rifles is with MHA while the operational control is with the Ministry of Defence.
- It is headed by an Army officer of the rank of Lieutenant General.

Border Security Force (BSF)

- The BSF is called the "India's First Line of Defence".
- BSF was established on 1st December 1965 in the wake of the 1965 Indo-Pakistan war.
- BSF undertakes defensive actions during wartime to free up Indian Army troops for offensive operations and the BSF has also been tasked with assisting the CRPF and army in counter-insurgency operations in recent years.

Central Industrial Security Force (CISF)

- CISF was set up in 1969, under the provisions of the Central Industrial Security Force Act, 1968.
- CISF is entrusted to provide integrated security to the Public Sector Undertakings, airports and SEZs on a case-by- case basis.
- CISF is also providing security cover to nuclear installations, space establishments, seaports, power plants, sensitive Government buildings, and heritage monuments.
- CISF is also responsible to provide protection to the persons classified as Z Plus, Z, X, Y.
- CISF is a compensatory cost force which means that it has to be paid by the protectee for its security cover
- CISF is the only force with a customized and dedicated fire wing.

Central Reserve Police Force (CRPF)

- CRPF was initially set up as the Crown Representative Police in 1939.
- The force was renamed as Central Reserve Police Force by an Act of Parliament in 1949.
- CRPF has become a premier central police force of India and it involves itself in crowd control, counter insurgency operations, checking environmental degradation, fighting aggression during War, participating in UN Peacekeeping Missions and rescue operations during the time of Calamities
- Specialised units of CRPF include:
 - * Rapid Action Force (RPF)
 - * Commando Battalion for Resolute Action (CoBRA)
 - * Mahila Battalions

Indo-Tibetan Border Police (ITBP)

- The Indo-Tibetan Border Police was established in 1962 post the Sino-Indian conflict.
- ITBP was initially set up under the CRPF Act. However, in 1992, parliament enacted the ITBP Act.
- The motto of the Force is "Shaurya-Dridhata-Karma Nishtha" (Valour - Determination - Devotion to Duty).
- ITBP personnel are also called "Himveers".
- ITBP replaced Assam Rifles in Sikkim and Arunachal Pradesh in 2004.
- The India-China border covering the states of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh are guarded by the ITBP (from the Karakoram pass to Jachep La)

National Security Guard (NSG)

- NSG was established in 1986 to counter the surge of militancy in the country.
- It has a highly trained force which deals with exceptional situations when local police and special forces need assistance.
- It was raised to combat terrorist activities and to guarantee the states do not experience any

Sashastra Seema Bal (SSB)

- Sashastra Seema Bal was established as the Special Service Bureau in 1963.
- They guard the Indo-Nepal and Indo-Bhutan Borders.
- SSB is mandated to promote a sense of security among the people living in the border areas; prevent trans border crimes and to prevent smuggling and other illegal activities on our frontiers.
- They are also deployed during elections as polling booth security.
- Its area of coverage included 15 states

Challenges faced by the Central Armed Police Forces (CAPF) personnel:

- It is said that the personnel of the police department are given a step-motherly treatment as compared to the personnel from the defence services.
 - * The personnel of defence services are rewarded more handsomely in terms of monetary grants as compared to policemen.
 - * Example: An Ashoka Chakra reward includes ₹2 lakh and 25 bighas of land or ₹2 lakh in lieu of land.
 - » The awardee of the President's Police Medal for Gallantry (PPMG) receives a sum of ₹1 lakh along with 25 bighas of land.
 - » An awardee of the President's Police and Fire Service Medal for Gallantry (PPFSMG) gets only ₹75,000 and 25 bighas of land and the amount paid for the Police Medal for gallantry (PMG) is only ₹50,000 and 25 bighas of land.
- According to reports about 657 personnel belonging to the CAPF have committed suicide in the last five years.
- Further, there are over 84,000 vacancies in CAPF which has put a lot of burden on the personnel.
- The Standing Committee on Home Affairs in the year 2017 highlighted the harsh working conditions of CAPF personnel and said that they often worked for about 16-18 hours a day, with little rest and sleep.
- CAPF personnel also are provided with inadequate medical facilities, especially at the borders and in remote locations.
- The Estimates Committee pointed out that there are various challenges associated with the curriculum and infrastructure of training institutes of CAPF and there is an immediate need for reforms.
- There are also various impediments to the modernisation of equipment and weaponry of CAPF personnel.

Recommendations:

- The Government should establish a high-powered committee to examine the opportunity of creating three classes of gallantry medals exclusively for the police forces on the lines of the Ashoka Chakra, the Kirti Chakra and the Shaurya Chakra.
 - * These awards could be named Sarvottam Police Chakra (SPC), Uttam Police Chakra (UPC) and Police Chakra (PC).
 - * The reward extended for those personnel who are awarded the PPFSMG and the PPMG could be placed at par with the Kirti Chakra and the reward for awardees of the PMG could be placed at par with the Shaurya Chakra.
- The Centre must take immediate measures to fill the vacancies in CAPF.
- Further, efforts should be initiated to induct modern and advanced equipment and weaponry and improve medical and educational infrastructure
- Government must better the working conditions of CAPF personnel by regulating their work hours and extending recreational/entertainment, sports, communication facilities.
- Steps have to be undertaken to improve the mental health of CAPF personnel which can help reduce the number of suicides.

narcotics products worth Rs. 7,40,77,126/ and has helped arrest over 160 individuals

Nut Graf:

Acknowledging the crucial role played by the personnel of CAPF in protecting the borders of the country, preventing trans-border crimes, smuggling, and ensuring India's internal security, more efforts must be undertaken to improve the living conditions and honour the CAPF personnel.

Various Security forces and agencies and their mandate**4. Operation NARCOS**

» Prelims: Operation NARCOS

Context

- The Railway Protection Force (RPF) launched Operation "NARCOS" in the month of June-2022.

Operation "NARCOS"

- RPF has been empowered to conduct search, seizure and arrest under the Narcotic Drugs and Psychotropic Substances Act, 1985 (NDPS Act) since April 2019 and has been actively participating in restricting illegal trade.
- Under this operation, RPF has performed extremely well against the transporters of narcotics products through Indian Railways.
- In the month of June 2022, RPF recovered various

ENVIRONMENT AND ECOLOGY

Conservation and Degradation Environmental Pollution and Environmental Impact Assessment

1. E-Waste (Management and Handling) rules

- » Prelims: E-Waste (Management and Handling) rules
- » Mains: Proposals in the new draft rules and concerns associated with them

Context:

- Draft E-waste (Management and Handling) Rules, 2022 had been released for public comments in May 2022 by the Environment Ministry.

Details:

- The new draft Rules depart significantly from the previous regulations in the following ways.
 - * The draft rules state that producers of e-goods have to ensure that at least 60% of their produced e-waste is recycled by 2023. This marks a significant shift from the current collection rate targets to recycling rate targets.
 - * The new draft rules also introduce a market for e-waste recycling certificates.
 - * The draft rules also propose the setting up of a Steering Committee to oversee the "overall implementation, monitoring, and supervision" of the regulations. This committee would be suitably empowered to ensure smooth implementation of the proposed regulations.
 - * The draft e-waste Rules also proposes expanding the definition of e-waste and more clearly specifies the penalties for violation of rules.
 - * It also introduces an environmental compensation fund based on the 'polluter pays' principle.

Concerns:

Unrealistic targets:

- The article argues that the proposed e-waste recycling target appears unrealistic due to the following reasons.
 - * The e-waste recycling segment in India is still in its infancy and most of the current recycling is carried out by the informal sector using inefficient and unsafe technologies, which may not be able to scale up and meet the targets for recycling.
 - * The technical feasibility and commercial viability of different recycling technologies and approaches are still evolving and the lack of a matured technology will act as a major impediment to the growth of the e-recycling segment in India.

Lack of clear guidelines on the regulation of different stakeholders:

- The new draft rules lack any provisions on regulating registered collectors, dismantlers, and producer responsibility organisations. This can undermine the regulation of these entities to carry out their responsibilities in an environmentally safe manner.
- Despite the significant share of e-waste processing done by the informal sector in India, the new draft rules seem to be silent on the integration of this informal sector and instead place the responsibility of such integration on the State governments.

Lack of clear-cut provisions with respect to recycling targets:

- The new draft rules do not provide a clear understanding of whether the recycling target applies to every component of an e-product or the aggregate weight.
- This is a major loophole as this could be misused by producers who can resort to recycling materials like plastic, copper and glass that are easy and inexpensive to recycle while neglecting the materials like rare earth metals that are costly and technologically more difficult to recycle but perhaps have a greater environmental footprint. This would undermine the underlying objective of having such management rules.

Lack of representation in the Steering Committee:

- While the proposal for an institutional mechanism such as the steering committee is welcome, the lack of adequate representation from science/academia and civil society organisations in the Committee remains a major concern.

Nut Graf

The core changes proposed by the Draft E-waste (Management and Handling) Rules, 2022 require careful deliberation with all the relevant stakeholders before the Rules are finalised.

Environmental Conservation

2. Forest landscape restoration

- » Mains: Significance of forest landscape restoration and afforestation measures undertaken in India

Background:

- As per International Union for Conservation of Nature (IUCN), deforestation and forest degradation is the key cause of about 12% of global greenhouse gas emissions.
- According to Global Forest Watch, the total area of humid primary forest in India had decreased by 3.6% from 2002 to 2021.

Forest landscape restoration approach:

- Traditionally, various organisations and governments have depended heavily on afforestation and reforestation measures to grow trees on non-treed land.
- However as these measures have undergone changes, the focus is now on forest landscape restoration strategies.
- Forest landscape restoration is the process of recovering ecological functionality and enhancing human welfare in deforested or degraded forest landscapes.
- It satisfies multiple land uses and people's needs both in the short and long term.

Significance of Forest landscape restoration approach:

- This approach involves the participation of local communities in the process of designing and executing mutually advantageous interventions for the upgradation of landscapes.
- Over two billion hectares of degraded land in the world and about 140 million hectares in India can be restored as forest land.
- This approach also ensures that the diversity of the species is maintained as natural forests have diverse native tree species
- As the tree species are more diverse, this approach helps in creating forests that are more efficient in carbon sequestration.
- Further, diverse species are also beneficial to the local communities and their livelihoods as studies reveal that diversifying species in forest plantations has a positive impact on the quality of the forests.
 - * Example: In Punjab, local species like Jhand, Desi Kikar and Pharwan are extensively planted which are resilient and acclimatised to native conditions.

Benefits of planting trees:

- The plantation of trees has several environmental and ecological benefits as they play a key role in carbon sequestration and mitigating the adverse impact of climate change.
- Forests help in absorbing about 2.6 billion tonnes of carbon dioxide every year.
- Several lives and livelihoods across the world are also dependent on forests
 - * Forests act as a source of livelihoods to local communities and hence acts as a resource base for various goods and services.
- A study by the World Resources Institute points out that forest ecosystems improve soil fertility, water availability and prevent erosion thereby improving agricultural productivity and contributing to the rural economy.

- Further, forests play a crucial role in ensuring food security and women empowerment by providing them nutritional diets and new income sources.

Initiatives undertaken in India:

- Van Mahotsav Day – it is a pan-India tree planting festival celebrated in July every year.
- Bonn Challenge – was launched with an aim of restoring 350 million hectares of degraded land by 2030 and India joined the Bonn Challenge in 2015 and pledged to restore 26 million hectares of degraded and deforested land by 2030.
- Compensatory Afforestation – It involves identification of non forest land or degraded forest land, work schedule, cost structure of plantation, provision of funds, mechanism to ensure the utilisation of funds and monitoring mechanism etc.
- National Afforestation Programme – It has been a flagship afforestation scheme. It was introduced in 2000 for afforestation in identified degraded forest areas with people's participation and decentralised forest governance.
- National Mission for a Green India (Green India Mission) – this mission was launched in 2014 and aims to protect, restore and enhance India's diminishing forest cover. The mission comes under the umbrella of the National Action Plan on Climate Change
- Nagar Van scheme – this scheme emphasises on urban forestry and nearly 200 urban forests are to be developed all over the country.
- Forest Fire Prevention and Management Scheme – is the only centrally funded program specifically dedicated to assist the states in dealing with forest fires.
- Green Skill Development Programme – This initiative helps youth who aspire to attain employment in the environment and forest sectors.
- Haritha Haram by Telangana government – It was launched in 2015 and it is a large-scale tree-planting program implemented by the Government of Telangana.

Way forward:

- Considering the benefits of forest landscape restoration it has to be extensively implemented.
- There is a need for proactive involvement and coordination in the tree plantation drives among all the stakeholders such as the communities, governments and landowners.
- The focus should be on the restoration, revival and strengthening of natural forest ecosystems.
- Communities that are extremely reliant on forest ecosystems and vulnerable to climate change are to be protected.

Nut graf:

As countries across the world are seen pursuing various afforestation tactics to address the consequences of land degradation, the forest landscape restoration approach must be adopted as it bolsters forest ecosystems and ensures that they are durable and sustainable.

Environmental pollution and degradation**3. Melting of glaciers**

- » Mains: Status of melting of glaciers in Drass, its causes and its impact.

Context:

- A study by the journal Environmental Science and Pollution Research.

Details:

- The study, which is based on the analysis of satellite images of 77 glaciers, observed that the glacier area decreased from 176.77 sq. km in 2000 to 171.46 sq. km in 2020, which is nearly 3% of the total glacier area.
- The pace of glacial recession varies among the glaciers ranging from 0.24% to 15%.
- The study highlights that the debris cover had a great impact on glacier melting, as the clean glaciers lost about 5% more than debris-covered glaciers.

Reasons for the fast paced glacial melting:

- The study attributes this fast pace of glacial recession to the increasing vehicular movement in the region.
- The study also found that there was a significant increase in the black carbon concentration between 1980 to 2020.
- The increase in the black carbon concentration is due to the proximity to the National Highway as heavy vehicles are responsible for 60% of black carbon emissions.
- The region has been experiencing a massive military movement on both sides of the Line of Actual Control (LAC) since 2020.

Impact of glacial melting:

- Melting of glaciers results in an increase in the sea levels, which in turn increases coastal erosion and impacts the lives and livelihoods of the people residing in the areas.
- Further, it elevates storm surges as warming air and ocean temperatures result in more frequent and intense cyclones, hurricanes and typhoons
- It also causes the extinction of various species (terrestrial and aquatic) as their natural habitat is impacted.

- Further, the melting of glaciers in the Himalayas will have a significant impact on the water resources as there will be a change in the glacier basin hydrology and downstream water budget.
- Melting of glaciers will also cause flash floods and sedimentation and in turn impacts important hydropower plants.
- The Melting of glaciers also leads to Glacial Lake Outburst Floods (GLOFs).

Nut graf:

Since the fast pace deletion of the glaciers in the Himalayan region has a significant impact on the regional water resources, hydrological processes, ecosystem services and transboundary water sharing, there is an immediate need for the governments of these countries to collaborate and intervene to arrest the pace of glacial melting.

Conservation, Environmental pollution and degradation**4. Altering green laws**

- » Prelims: Environment (Protection) Act
- » Mains: Critical evaluation of the proposed amendments to the Environment (Protection) Act

Context:

- The Ministry of Environment, Forest and Climate Change (MoEFCC) has proposed to amend the Environment (Protection) Act, 1986.

Details:

- The MoEFCC has proposed changes to four important acts namely:
 - * The Environment (Protection) Act, 1986
 - * The Water (Prevention and Control of Pollution) Act, 1974
 - * The Air (Prevention and Control of Pollution) Act, 1981
 - * The Public Liability Insurance (PLI) Act, 1991
- The Ministry has proposed to scale down some of the punishments against environmental violations provided under these laws.

"The Environment (Protection) Act, 1986"

- The Environment (Protection) Act (EPA) was introduced in 1986
- It was enacted under Article 253 of the Constitution.
- This Act provides for the protection and improvement of the environment.
- The Act empowers the Central Government to establish authorities charged with the mandate of preventing environmental pollution in all its forms and tackling specific environmental problems that are peculiar to different parts of the country.
- The EPA establishes the framework for studying, planning, and implementing long-term requirements of environmental safety and laying down a system of speedy and adequate response to situations threatening the environment.

Proposed Amendments to Environment Protection Act:

- The MoEFCC has proposed to modify provisions of the EPA by replacing provisions that provide for imprisonment with ones that prescribe fines.
 - * This doesn't apply to violations that cause grave injury or loss of life.
 - * At present, the violators face imprisonment of up to five years or a fine of up to ₹1 lakh or both. If the violations continue, an additional fine of up to ₹5,000 for every day would be levied during which such a violation continues.
 - » Further, the jail term can also be extended to seven years.
- Proposed amendments also include the appointment of an 'adjudication officer' who will be entrusted to decide on the penalty against environmental violations
 - * These funds collected would be accumulated in an "Environmental Protection Fund."

The need for amendments:

- Various reports have highlighted that the existing legislations have been less effective.
- A study by the Centre for Science and Environment pointed out that Indian courts took about 9 to 33 years to clear a backlog of cases for environmental violations.
- At the start of 2018, nearly 45,000 cases were pending trial and about 35,000 cases were additionally added in the same year.
- Further, over 90% of the cases were pending trial in five of the seven environment laws enacted

Arguments for the proposed amendments:

- Experts feel that the new amendments would reduce delays in the adjudication of environment related cases as the existing procedures were extremely time-consuming.
- Further, the proposed changes would regard certain categories of crimes as "civil crimes" which makes it easier to hold organisations accountable.

Arguments against the proposed changes:

- Critics feel that the existing stringent provisions were meant to prevent violations and scaling down the punishments will lead to large-scale environmental violations.
- Few experts feel that these changes will encourage a pollute-and-pay attitude
- They also believe that the amendments would provide a chance for corruption as adjudicating officers are provided with arbitrary powers.

Nut Graf:

Acknowledging the fact that the issue of pollution control needs much attention, the Environment Ministry has proposed to decriminalise the existing provisions of the Environment, Air and Water Acts as these existing criminal provisions have largely been inefficient.

Environmental Conservation**5. Forest Conservation Rules**

- » Prelims: About the Forest (Conservation) Rules, Forest Conservation Act, 1980 and Forest Rights Act, 2006
- » Mains: Critical evaluation of Forest (Conservation) Rules, 2022.

Context:

- The Ministry of Environment, Forest and Climate Change (MoEFCC) has notified the Forest (Conservation) Rules, 2022.

Forest (Conservation) Rules:

- The Forest (Conservation) Rules deal with the implementation of the Forest Conservation Act (FCA), 1980.
- These rules mention the procedure to be followed for the diversion of the forest land to non-forestry activities like developments of roads or highways, railways and mining.
- There is a need for getting approval from the Union government for diverting forest land of over five hectares. This will be done through a Forest Advisory Committee (FAC).
- The FAC will assess the request for diversion of land and ensure that the consequences or damages of felling of trees and denuding the local landscape are minimum and doesn't damage the wildlife habitat.

- After the FAC approval, the request is sent to the respective states which then assess the land diversion activity based on the provisions of the Forest Rights Act, 2006 (FRA).
- Further, the future users of the land are mandated to provide compensatory land for afforestation and also pay the net present value (NPV).

Forest (Conservation) Rules, 2022:

- The latest rules provided that compliance with the FRA is not required for the final approval for the diversion of forest land.
 - * According to these rules, the Union government can first approve the handover of the forest and collect payment for compensatory afforestation.
 - * The state government then has to settle the forest rights of the communities and rehabilitate them.
- Further, these rules extend a provision for private parties to cultivate plantations and sell them as land to firms who are supposed to meet the compensatory afforestation targets.
- These rules also provide timeframes within which various projects must be reviewed by a project screening committee.
 - * For example: All non-mining activities that divert land of between 5-40 hectares must be reviewed within 60 days.
- It also provides for the establishment of an Advisory Committee which advises the government about the grant of approval to such projects.
- The rules also provide that if the forest land is to be diverted in a state or a UT that has a forest cover of more than two-thirds of its geographical area, the compensatory afforestation may be taken up in another state or UT which has forest cover less than 20% of its total geographical area.

Criticism about the new rules:

- Critics feel that these rules will dilute the Forest Rights Act, 2006 as the Act mandated the governments to seek the prior and informed consent of forest dwellers before allowing a project on their traditional lands.
- Opposition parties have claimed that the new rules will adversely impact tribal rights and encourage 'ease of snatching' forest land in the name of ensuring 'ease of doing business'.
- Critics also opine that these rules put the burden of ensuring the rights of Scheduled Tribes on the state governments.
- Further experts pointed out that the new rules bypass the requirement of getting an NOC from gram sabha before diverting forestland.

The Government's stand:

- The government says that the latest rules will help to increase the forest cover in the country and also address the problems of the States of not finding land within their jurisdiction for compensatory purposes.
- The MoEFCC said that fulfilling and complying with the FRA, 2006 was an independent process and could be undertaken by States "at any stage" of the forest clearance process.
- The government has justified the rules by saying that they will help "streamline" the procedure of getting approvals as they allow parallel processing of the proposals and eliminate redundant processes.

Nut graf:

Environmental and forestry experts feel that the Government must revisit the provisions of the Forest (Conservation) Rules, 2022 as the implementation of new rules can have severe consequences on the environment and ecology of the country as well as on the rights of various tribes and forest dwellers.

Conservation, environmental pollution and degradation

6. India's climate imperative

- » Mains: Impacts of climate change in India and key recommendations to mitigate these impacts.

Adverse impacts of climate change in India:

- Climate change-induced disasters have become frequent in India in recent years, which include:
 - * The scorching heat waves across Rajasthan, Uttar Pradesh, Gujarat, and New Delhi in 2022
 - * Excessive rainfall in south India in 2021
 - * Super cyclone Amphan that impacted West Bengal and Odisha in 2020
- Temperatures over the Indian Ocean have increased by about 1°C since the 1950s which has caused extreme weather events in the country.
- India is said to be the fourth most affected country due to climate migration.
- The prevalence of heat waves in the country has resulted in the death of over 17,000 people since the 1970s.
- It is estimated that the labour losses due to rising heat would amount to ₹1.6 lakh crores annually if global warming exceeds 2°C, with India being one of the most affected.

Recommendations:

Increasing climate resilience:

- Promotion of agricultural practices which are not water-intensive and do not cause afforestation, as these two are key causes of some of the extreme weather events in India.

- The introduction of insurance schemes and effective implementation of some of the existing insurance schemes can help transfer the risks of extreme weather events from industrial, construction and agricultural workers to insurers.
- Diversification of crops and mixed farming can also help improve climate resilience.
- As the impact of floods and storms is aggravated by the ingression of the sea shore and coastline erosion in the low-lying areas, the States must be directed to avoid such construction in these areas.

Environment impact assessments:

- It is important to assess flood-risk zones to manage vulnerable regions.
- Environment Impact Assessments must be compulsory for all commercial projects.
- Based on the Environment Impact Assessments, suitable houses and buildings can be constructed such that there is minimal impact in case of a disaster.
 - * Example: Round-shaped houses can reduce the strength of the winds and roofs with multiple slopes can withstand strong wind.

Mitigate or prevent climate change:

- Efforts to transition away from fossil fuels must be expedited.
- Measures must be undertaken to protect and expand forest coverage.
- India, being a signatory of the "Glasgow Declaration" on forest protection in 2021 must scale up the regulations which ensure the protection of forest lands.

Management of dams:

- According to studies, close to 300 dams in India are over 100 years old and require restoration.
- Timely management of dams can mitigate the adverse impact of glacier lake outbursts and floods.
- Further, the government must ensure that dams are not constructed in eco-fragile regions and also put a check on activities like the dynamiting of hills, sand mining, and quarrying.

Increasing funding:

- India's contribution towards disaster management must be increased to 2.5% of its GDP.
- Climate finance also attracts large-scale funding from institutions like the World Bank, the IMF, and the Asian Development Bank.

Increased participation of States:

- States must play an active role in making use of the centre's resources, funding and technical expertise.
- The MGNREGA funds can be utilised for the construction of climate resilient infrastructure that helps improve agriculture and waste management.

- States must also extend financial assistance to local self-government resources for advancing climate adaptation.

Nut Graf:

The frequency, magnitude and intensity of climate change-induced disasters have increased multifold in recent years in India and this calls for immediate attention towards increasing climate resilience in the country and preventing further degradation of the environment to mitigate the impact of climate change.

Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment

7. Backsliding on climate action

- » Mains: Failure of the developed countries to adhere to their climate commitments- concerns.

Background:

Failing climate action commitments:

- Western nations seem to be renegeing on their promised climate action under the Paris deal.
 - * Countries in Europe seem to be moving back towards carbon-intensive fossil fuels like coal. There also seems to be growing resentment among the citizenry against imposed emission cuts in sectors such as agriculture and industry which they feel could undermine economic growth and development. The economic disruption caused by the pandemic has resulted in a recession-like situation in Europe and the appetite for climate action seems to be waning.
 - * Fossil fuels are making a quiet comeback in the U.S. too. Having pushed to make a choice between concentrating on the economy to get it back into recovery mode and fighting hard against climate change, climate action seems to be taking a back seat.
- There seem to be attempts to reinterpret the Paris deal aimed at downgrading the 2030 commitments made under the Paris Agreement.
 - * The developing countries by calling for a global net zero seem to be deflecting attention away from the concept of Common But Differentiated Responsibilities (CBDR). There seems to be a clear attempt at misinterpreting the concept of net zero by developed countries.
 - * Also, the calls for early peaking of carbon emissions tend to overlook the provisions laid out in the Paris Climate Agreement. This would result in undue pressure on developing countries to peak early.

* Article 4 of the Paris Agreement defines 'Global Peaking' thus: "In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties."

- The developed countries have not kept up their promise of mobilising \$100 billion per year by 2020 for climate action in developing countries. They have also failed to ensure sufficient transfer of technology to facilitate a transition towards less carbon-intensive economy in developing countries.

Concerns:

- The downgrading of the commitments made by the carbon-intensive developed countries would render the achievement of the target of limiting global warming to below 2°C almost impossible.
- Also, the Global South could be forced to compensate for the shortfall in climate action if and when the developed countries downgrade their pledges of climate action. This will adversely impact the economic and social developments in such countries.

Recommendations:

- The developed countries, given their historical emissions, will have to peak first with more time for developing countries.
- Also the developing countries must be given more time to achieve net zero later than developed countries. In fact, the developed countries should be pushed to adopt a net negative carbon emissions target to compensate for their historical emissions. The developed countries should reach net zero earlier than 2050 in order to achieve the overall global net-zero target by around mid-century.

Nut Graf

The "global stocktake" of the Paris Agreement will be done in 2023 to assess the world's collective climate action. Developing countries like India should hold the countries of the developed world accountable to their climate action commitments made under the Paris Climate Agreement.

Environmental Conservation

8. New Ramsar sites

» Prelims: Ramsar Convention and the Ramsar sites of India

Context:

- India has added five more Ramsar sites.

Details:

- The five newly added wetlands of international importance include:

- * Karikili Bird Sanctuary, Pallikaranai Marsh Reserve Forest and Pichavaram Mangrove in Tamil Nadu
- * Sakhya Sagar in Madhya Pradesh
- * Pala Wetlands in Mizoram

- With this, the Ramsar sites in India have been increased from 49 to 54 sites.
- Wetlands, according to the MoEFCC, are an "area of marsh, fen, peatland or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres, but does not include river channels, paddy fields, human-made water bodies/tanks specifically constructed for drinking water purposes and structures specifically constructed for aquaculture, salt production, recreation and irrigation purposes."
- To be named a Ramsar site, the wetland must adhere to at least one of nine criteria as defined by the Ramsar Convention.
- India's Ramsar wetlands cover over 11,000 sq.km which accounts for about 10% of the total wetland area in the country across 18 States.
- With 54 sites, India has the most number of sites among all the South Asian countries.
- The U.K. (175) and Mexico (142) have the most number of Ramsar sites.

Environmental Conservation

9. Tiger conservation

» Mains: Tiger conservation and genetic drift

Context:

- Global Tiger Day is celebrated on July 29th every year to raise awareness about Tigers. The first Tiger day was celebrated in 2010 when the 13 tiger range countries came together to create Tx2 – the global goal to double the number of wild tigers by the year 2022.

Introduction:

- India is home to over 50% of the world's wild tigers with an estimated 2,226 tigers and is reporting an increased number of tigers since 2005, and recent data from the International Union for Conservation of Nature shows that tiger numbers have increased by 40% since 2005. This is cause for celebration.

Is the rise in tiger numbers enough to prevent their extinction?

Genetics and connectivity:

- Several studies on evolution show that the numbers are crucial to preventing extinction.
- Species with populations of less than 100 breeding individuals have a high probability of extinction.

- Also, for populations to endure, they need to be part of larger landscapes with other such populations that are connected.
 - * Isolated and small populations face a high probability of extinction because of genetic drift.
- Also, individuals in small populations are more likely to be related, causing inbreeding depression, and reduced survival and reproduction of inbred individuals.

Research Findings on Genetics and Connectivity of Tiger Population:

- Most tiger ranges have tiger 'populations' smaller than 100.
- Based on movement data sourced from radio-collared tigers and their biological data it is evident that,
 - * Tiger reserves that show shared genetic variation are well connected — the inference is that the intervening landscapes facilitate connectivity or movement whereas sets of tiger reserves that share less genetic variation must have barriers or landscapes that impede movement and connectivity.
 - * The presence of settlements, infrastructure and high-traffic roads greatly obstruct tiger movement.
 - * Given the specific land-use changes in the next 100 years, simulations show that the development projects such as highway widening would make them barriers, thereby increasing extinction significantly.
 - * Fencing tiger reserves thereby isolating them also resulted in high extinction.

Genetic effects of Isolation:

- A recent study on black tigers/pseudo-melanistic found in Simlipal, Odisha has shown the genetic effects of isolation.
 - * Tigers in Simlipal form a small and isolated population where 60% of them carry at least one copy of genetic variant DNA resulting in pseudo-melanistic tigers that are common only in Simlipal.
- In another study, genome sequences from wild tigers of Ranthambore tiger reserve showed inbreeding among individuals, which might affect the survival and the reproduction of tigers in Ranthambore in future.

Way Forward:

- Future development policies should be in line with conservation goals.
 - * For example, having an underpass or eco bridges to allow wildlife movement and connectivity.
- To retain the evolutionary potential of tigers as a species, we should work to conserve the entire extant gene pool, range of habitats, behaviors that are

culturally inherited, and manage populations so as to retain their unique evolutionary trajectories while addressing fragmentation caused by developmental activities.

- Special attention is needed for populations that are becoming isolated and facing the genetic consequences of such isolation.
- Synergy between data and management strategies must be promoted to ensure their survival.

Nut Graf:

There is sufficient evidence to show genetic differences amongst tigers due to vicariant events and local selection which might lead to their extinction in future. As long as we manage landscapes outside tiger reserves to allow tiger movement, and protect prey and tigers inside tiger reserves, extinction can be avoided.

Places in news

10. Singalila National Park

» Prelims: Singalila National Park

Context:

- Red Pandas are to be released from Darjeeling zoo to Singalila National Park in a rewilding programme.

Red Pandas:

- The Red Panda is a carnivore indigenous to the eastern Himalayas, foothills of western Nepal and southwestern China.
 - * It is also found in mountain ranges of Tibet, Sikkim, Assam, Bhutan
- Red pandas are shy, solitary and arboreal animals and considered an indicator species for ecological change.
- IUCN status: Endangered
- Red pandas are listed under Schedule I of the Indian Wildlife (Protection) Act, 1972
- The Red panda is the state animal of Sikkim.

Singalila National Park:

- Singalila National Park is located on the Singalila Ridge in Darjeeling, West Bengal.
- The park is part of the Eastern Himalayas.
- The National Park is located at an altitude of more than 7000 feet above sea level.
- Singalila along with Neora Valley National Parks is a protected area for Red Panda
- The park hosts a large number of mammals such as leopard cat, barking deer, yellow-throated marten, wild boar, pangolin, Himalayan black bear, clouded leopard, serow and takin.

Biodiversity and Conservation- Floral species in news

11. Khejri trees

» Prelims: Khejri trees

Context

- The Bishnoi activists, protest against the felling of khejri trees for the installation of eight solar power plants in Jodhpur district.

Khejri trees:

- Khejri (*Prosopis cineraria*) is a species of flowering tree in Fabaceae (pea family)
- It is also called Ghaf (in Middle East), Chhonkara (Uttar Pradesh) and Jammi (Telangana)
- The tree is found in the dry regions of Rajasthan, Delhi, Gujarat, Punjab and Madhya Pradesh in India and also found in Afghanistan, Iran, and Pakistan.
- It is regarded as the 'kalpavriksha of the desert' and also as the 'king of the desert' and the 'wonder tree' for its ability to survive in extreme desert type conditions.
- The tree plays a key role in preserving the ecosystem of arid and semi-arid areas.
- Khejri is the state tree of Rajasthan
- Khejri is a nitrogen-fixing tree and it enhances the fertility of the soil.
- The leaves of the tree have a high nutritive value which are locally called 'loong' and the bark of the tree is used in treating scorpion and snake bites.

Conservation

12. India's largest floating solar power project commissioned

- » Prelims: Floating Solar PV Project in India
- » Mains: Advantages and the role of Floating Solar PV Project in environmental conservation

Context:

- India's largest floating Solar Power Project, the Ramagundam Floating Solar PV Project at Ramagundam, Telangana, is now fully operational.
- The 100-megawatt (MW) floating solar power photovoltaic project was commissioned by the National Thermal Power Corporation, the country's foremost public-sector power generator.

What are floating solar plants?

- Solar plants or solar farms can be either ground-mounted or set up on the surface of waterbodies. Though these floating farms are a bit more expensive than the traditional ones mounted on land surfaces, there are advantages as well.

How these panels are kept floating?

- At Ramagundam, the solar modules are placed across 500 acres on floaters manufactured with high-density polyethylene material that keeps floating irrespective of water-level fluctuations. The entire spread is divided into 40 blocks, each having a capacity of 2.5 MW.
- Each of these blocks consists of a floating platform and an array of 11,200 solar modules. The floating platform consists of an inverter, transformer, and a high-tension circuit breaker.

How is the project unique?

- This project is unique because all the electrical equipment from the inverter, transformer, high-tension panel to supervisory control and data acquisition are also set up on floating ferro-cement platforms.
- According to the NTPC, the entire floating system is anchored through special high-modulus polyethylene ropes to the dead weights (concrete blocks) placed in the balancing reservoir bed.

Advantages of Floating Solar Power Projects:

- Floating solar power projects deploy photovoltaic panels on the surface of water bodies.
- They are a viable alternative to solar installations on land since they offer many advantages such as:
- No land acquisition issues
- Freeing up the land for agriculture
- The cooling effect of water proximity enhances the performance of the photo voltaic cells by 5-10%
- Less grid interconnection costs
- Less water evaporation
- Improvement in water quality
- Decrease in algal blooming

Examples of other floating solar power projects in India:

- Omkareshwar Reservoir, Madhya Pradesh
- Kayamkulam Project, Kerala
- Getalsud Dam Project, Jharkhand
- Rihand Dam, Uttar Pradesh

Conservation, environmental pollution and degradation

13. Pradhan Mantri JI-VAN Yojana

- » Prelims: Pradhan Mantri JI-VAN Yojana
- » Mains: Advantages of Pradhan Mantri JI-VAN Yojana

Context:

- The Government had notified the Pradhan Mantri JI-VAN Yojana for providing financial support to integrated bio-ethanol projects.

About the Pradhan Mantri JI-VAN Yojana:

- The scheme was notified in 2019 for providing financial support to integrated bio-ethanol projects for setting up Second Generation (2G) ethanol projects in the country using lignocellulosic biomass and other renewable feedstock.
- The scheme has an outlay of Rs. 1969.50 crore for the period 2018-19 to 2023-24.
- Under the scheme, the maximum financial assistance of Rs.150 crore per project for commercial projects and Rs.15 crore per project for demonstration projects has been prescribed for improving commercial viability as well as promoting R&D for the development and adoption of technologies in the field of production of 2G ethanol.
- JI-VAN stands for Jaiv Indhan-Vatavaran Anukool fasal awashesh Nivaran.
- The scheme will be supported financially by Viability Gap Funding (VGF).
- The objective of the scheme is to create an ecosystem for setting up commercial projects and boost to Research and Development in 2G Ethanol sector.
- The ethanol produced by the beneficiaries of the scheme will be mandatorily supplied to Oil Marketing Companies (OMCs) to further augment the blending percentage under Ethanol Blending Programme (EBP).
- Scheme's implementation Agency – Centre for High Technology (CHT), a technical body under the aegis of the Ministry of Petroleum and Natural Gas.

Benefits of the scheme:

- Encourages 2G biofuel technology rather than 1G biofuel which uses food crops for biofuel generation. 2G plants utilize surplus biomass and agricultural waste to produce ethanol, etc.
- Promotes fossil fuel substitution helping achieve reduced GHG emissions.
- Helps in stopping stubble burning.
- Creates employment opportunities.
- Helps achieve the goals under Swachh Bharat Mission by disposing of non-food biofuel feedstocks such as waste biomass and urban waste.
- Promotes R&D in the country in the field of second-generation biofuels.

Conservation**14. Plastic pollution**

- » Prelims: Single-Use Plastics
- » Mains: Single-use plastic (SUPs) and steps undertaken to phase out the use of SUPs

Context:

Recently, a ban on the use of single-use plastics that was notified by the Union Environment Ministry came into effect on July 1.

Plastic Pollution

- Plastics are non-biodegradable, synthetic polymers. They are made-up of long chain hydrocarbons with additives and can be moulded into finished products.
- These polymers are broken into monomers such as ethylene, propylene, vinyl, styrene and benzene, etc.
- Finally, the monomers are polymerised chemically into different categories of plastics.
- Petroleum-based plastic is not biodegradable. It usually goes into a landfill where it is buried or it gets into the water and finds its way into the ocean.
- Every year, India generated about 3.5 million tonnes of plastic garbage.
- According to the State of India's Environment 2022 report, 35% of India's plastic waste is in the form of multi-layered packaging which are non-recyclable.
- Also according to this report, a substantial share of plastic waste in India ends up in dumpsites and landfills (around 68%) as only 12% is recycled and around 20% of the 3.5 million tonnes of plastic waste generated in 2019-20 was burnt.
- In 2019, India produced an estimated 5 kg of mismanaged waste per person.

Consequences of plastic pollution

- A major threat to oceans according to a 2017 International Union for Conservation of Nature (IUCN) report, micro plastics are estimated to constitute up to 30% of marine litter polluting the oceans.
- The ingestion of microplastics is very dangerous for humans as these substances contain high concentrations of toxic chemicals such as polychlorinated biphenyls.
- People living in China, Indonesia, the Philippines, Thailand, and Vietnam along rivers and coastlines are the most impacted by plastic pollution.
- Low-income communities near plastic production sites face more health impacts, due to greater exposure to toxins and waste, and bear the brunt of the impacts of improper plastic disposal and incineration.
- Henderson Island in the South Pacific is the most plastic polluted of any island recorded to date.
- Since plastic does not decompose into a natural substance like soil, it degrades (break down) into tiny particles after many years. It releases toxic chemicals (additives that were used to shape and harden the plastic) in the process of breaking down which make their way into our food and water supply.
- These poisonous chemicals are now found in the human bloodstream. Causing cancer, infertility, birth defects, impaired immunity and many other ailments.

What are single-use plastics (SUPs)?

- The Centre defines single-use plastic as a plastic product that is designed to be used “just once” before being discarded or recycled.
- There is a list of 21 things that fall under the criteria of single-use plastic for the purposes of the ban.
 - * Single-use plastic items include plastic bags (mostly less than 50 microns), water bottles, straws, coffee stirrers, cups, food and drug packaging plastic etc.
- The Environment Ministry highlighted these items in August '21 when it notified the Plastic Waste Management Amendment Rules, 2021.

Environmental damage from single-use plastics

- While 99 percent of plastic gets recycled, heavier plastics are more likely to be gathered by rag pickers and plastic trash recyclers.
- Because single-use plastic things are light and flexible, they are less likely to be recycled.
- Single-use plastics do not give a strong enough incentive to collect them, so they accumulate, leach poisons into the soil, and cause environmental damage to both land and water.

Three-pronged strategy for banning single-use plastic in India:

- The government is considering a three-pronged plan to phase out single-use plastic in India:
 - * High littering potential – This refers to things that are readily discarded after use. The majority of them are throwaway things discovered in drains and are seen as products that contribute to littering.
 - * Low utility – Plastic items that have the least amount of utilization or utility after use. After the container is opened, wrapping plastic sheets are rarely used.
 - * Alternative availability – If other alternatives can be utilized in their stead. Paper bags, paper wrappings (which can be manufactured from recycled material), bamboo spoons in place of plastic spoons, and so on.

Issues with single-use plastic ban:

- Over time, single-use plastic has grown into a considerably larger sector, employing thousands of people and generating large revenue.
- Banks and financial institutions have a large stake in the single-use plastic business, and a total prohibition without an equal substitute will inflict tremendous disruption in India's retail trade working vertical.
- The prohibition would have a significant impact on Fast Moving Consumer Goods (FMCG) corporations owing to their reliance on plastic straws and plates.
- There is also a scarcity of biodegradable substitutes in India.

Nut Graf:

The single-use plastic ban is a significant step towards banning the use of plastic in India and moving towards a cleaner and greener future but it also comes with a set of concerns when it comes to certain industries such as FMCG, banking and financial institutions, etc. which have to be addressed.

Environmental Pollution and Degradation**15. Heatwave across Europe and forest fires**

- » Prelims: About Heat Waves
- » Mains: Reasons for extreme heat waves and their implications

Context:

Places in Europe, the U.K. and the U.S. are experiencing extreme heat wave conditions.

What are heat waves?

- According to the World Meteorological Organization (WMO) a heatwave refers to five or more consecutive days during which the daily maximum temperature exceeds the average maximum temperature by five degrees Celsius.
- A heatwave is qualitatively a condition of air temperature which becomes fatal to the human body under exposure.

Reasons for these extreme heat waves

- Experts suggest that the prevalence of this extreme heat wave condition is a result of climate change caused due to anthropological activities.
 - * Studies have already shown that a one degree rise in temperature increases the chances of the U.K. experiencing over 40°C tenfold.
- An increase in the global temperature mainly on account of climate change has increased the temperature in Antarctica by over 15° and over 3° in the Arctic region which has been impacting the global wind patterns.
- Prevalence of heat dome conditions refers to a low pressure area that began to attract hot air from northern Africa.
- The extreme temperatures in the U.S. are said to be due to the changes in the jet stream which is a narrow band of westerly air currents that circulate several kilometers above the earth's surface.
 - * Scientists believe that the jet stream has weakened and has been split into two, causing more intense and frequent heat waves over the American continent.

The 'heat dome'

Occurs when the atmosphere traps hot ocean air like a lid or cap

1 In summer, the **jet stream** (which moves the air) shifts northward

2 **Hot** and stagnant air **expands** upwards

3 Strong and **high-pressure** atmospheric conditions combine with influences from La Nina act like a dome or cap

4 In a process known as **convection**, hot air attempts to escape but high pressure pushes it back down

5 Under the dome, the air sinks and **compresses**, releasing more heat

6 As winds move the hot air east, the jet stream traps the air where it sinks, resulting in **heat waves**

Source: NOAA/US/Canada medias, experts

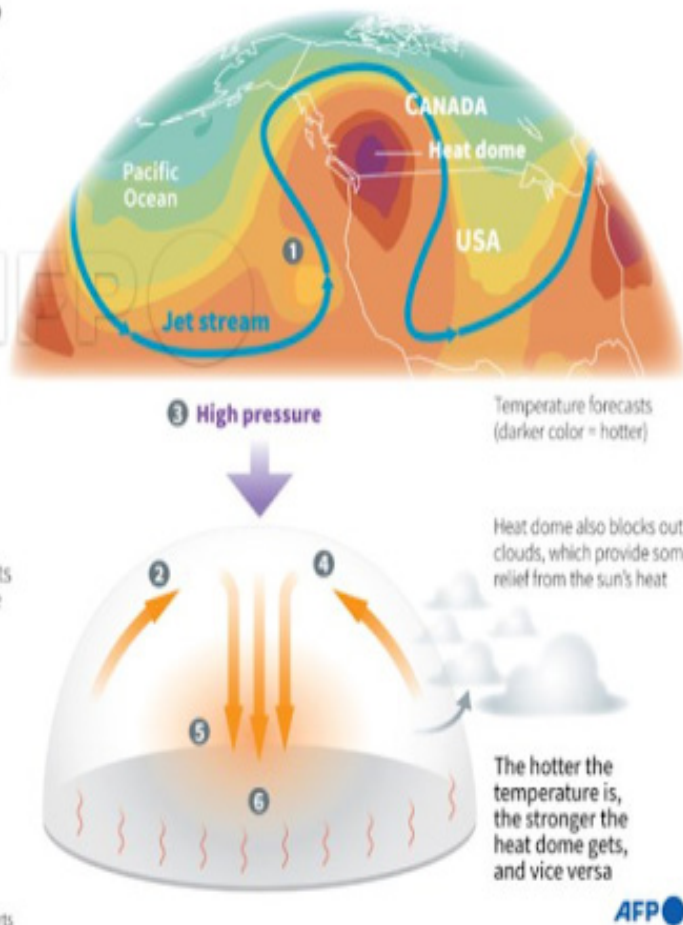


Image Source: AFP News Agency

Impact of extreme heat waves

- The extreme heat coupled with dry weather has caused wildfires that have destroyed about 19,000 hectares of forest in France with several people being displaced.
- Portugal has experienced over 250 blazes over a period of two days, and has reported 650 deaths due to heat-related illnesses in a span of one week.
- 14,000 hectares of land were destroyed in Spain due to fires and about 360 deaths were caused by extreme heat.
- Italy has been witnessing severe drought, with the Po river basin which is considered one of Europe's 'food bowls', not having received any rainfall in about 200 days.
- The temperatures have breached 43°C in some regions of America and nearly 69 million Americans are at risk of exposure to extreme levels of heat and heat-related illnesses.

- This prevalence of heat waves at a time when there is a rise in fuel costs caused due to the ban on Russian gas in the wake of the conflict in Ukraine invasion has aggravated the situation.
- Extreme heat conditions have also impacted the water tables and have caused a reduction in the soil moisture which will have severe implications on agriculture and energy security (hydro power)

Implications on India

- In recent years, similar incidents were reported from Indian states such as Rajasthan, Punjab, Haryana, Gujarat and Jharkhand.
- At the time when countries in the temperate zone are experiencing severe heat conditions, its impact on countries in the tropical zone will be much greater.
- Indian tropical dry deciduous forests are prone to fire and these forests used to experience low-intensity fires in the past. However, an increase in heat wave conditions will aggravate such instances.

Way Forward: Ways to Monitor and manage wildfires

- A preventive approach, in place of reactive approach by involving vulnerable groups, will help adapt to the wildfires,
- Indigenous fire management techniques will help in quicker resolution.
- Focus on long-range weather forecasting
- Effective use of remote-sensing technologies like satellites, ground-based radar, and lightning detection should be focused upon.

Nut graf:

The extreme weather conditions such as heat waves in Western Europe and America region pose a risk of large-scale devastation by increasing the frequency and intensity of wildfires, drought, and various heat-related illnesses. This looming climate emergency calls for collective action from all the countries and international organizations

Conservation

16.India’s renewable energy targets and their achievement

» Mains: India’s progress in achieving its renewable energy targets, key challenges and the way forward

Context:

- India has installed 162 GW of renewable energy capacity, which is 41% of the 402 GW of electricity installed by November 2021.

India’s progress in achieving its renewable energy targets

Target (for 2030)	Existing: First NDC (2015)	New: Updated NDC (2022)	Progress
Emission intensity reduction	33-35 per cent from 2005 levels	45 per cent from 2005 levels	24 per cent reduction achieved in 2016 itself. Estimated to have reached 30 per cent
Share of non-fossil fuels in installed electricity capacity	40 per cent	50 per cent	41.5 per cent achieved by the end of June this year
Carbon sink	Creation of 2.5 to 3 billion tonnes of additional sink through afforestation	Same as earlier	Not clear.

Image Source: Indian Express

- In 2015, India committed to ensure that 40% of its energy would be from renewable sources by 2030 as part of its Nationally Determined Contributions (NDC) and India has achieved clean energy targets nine years ahead of schedule.

- India had promised to generate 175 GW of renewable energy by the time the nation completed 75 years of Independence and about 170 GW capacity has been installed from non-fossil sources.
- Further, it is said that at least 500 GW of India’s installed electricity generation capacity in 2030 would be based on non-fossil fuel sources.
- Close to 65GW of solar and wind capacity has been added to the grid since the start of FY16.
- India is among the top four-five countries in the world in terms of installed solar power capacity as over 90% of India’s 54GW of solar capacity has been installed since FY 16.
 - * Also, many of the world’s largest solar power plants are in India.
- India is also one of the major producers of bioenergy, with plans of expansion.
 - * According to IEA, India will overtake Canada and China in the coming years to become the third-largest ethanol market after the US and Brazil.

Current challenges in achieving renewable energy

- A transition away from fossil fuels to renewable energy sources could trigger financial challenges for India.
- Nearly \$8.412 trillion will be required to transform India’s coal-reliant power sector into renewable energy sources.
- India would require \$223 billion of investment to reach its goal of wind and solar capacity installations by 2030.
- Despite significant achievements, the capacity growth in solar is still short of the average annual build rate of 30GW required to achieve the target of 300GW of solar capacity by 2030.
- After creating a record of adding 5.5GW of wind capacity in FY17, progress has slowed to an annual average of 1.6GW over the next five years.
- Further, ever increasing interest rates, depreciating value of rupee and high inflation are also key challenges for the financing of renewables.

Way forward

- India must invest in research and development that helps in developing indigenous futuristic technologies that make India self-reliant in terms of generating renewable energy.
- Stringent enforcement of the renewable purchase obligations (RPOs) for states
 - * Renewable Purchase Obligation (RPO) provides that all electricity distribution licensees should purchase or produce a minimum quantity of their requirements through Renewable Energy Sources.

- In order to Increase the investments to meet 2030 goals, Independent Power Producers must look towards new or under-utilised sources of capital which includes construction debt, investment infrastructure trusts and funding from retail investors, insurance companies and pension funds.
- Further, India should develop an entire ecosystem around renewable energy which involves:
 - * Investing in flexible generation sources like battery storage
 - * Modernisation and digitalisation of the grid
 - * Scaling up the domestic manufacturing of solar modules, solar cells, wafers and electrolyzers
 - * Encouraging electric vehicles
 - * Transition towards decentralized renewable energy like rooftop solar

Nut graf:
 Despite being one among the lowest per capita emitters of the world, India continues to invest heavily in energy transition towards renewable sources. However, fundamental challenges with respect to investment and infrastructure have to be resolved to unlock the full potential of renewable energy in the country.

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- Topic of the day**
A brief analysis of important topics for the exam
- This day in history**
A brief note on a major event that happened in the history of India and the world on this date
- AIR Spotlight**
- Sansad TV Perspective**

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- Economy this week**
Round-up of business newspapers
- Gist of economic and political weekly magazine**
- International Relations This Week**
- GK and current affairs quiz**

Monthly Updates

- BYJU'S current affairs magazine**
Compilation of current affairs
- Gist of magazines**
Extracts of articles and points from "YOJANA" and "KURUKSHETRA"

HEALTH ISSUES

Issues relating to development and management of Social Sector/Services relating to Health

1. **Antibiotics development**

- » Prelims: Facts about Antimicrobial resistance
- » Mains: Antimicrobial resistance (AMR) crisis – causes, solutions and recommendations

Context:

- Recent report on Antimicrobial resistance (AMR) by Global Research on AntiMicrobial resistance (GRAM).

Antimicrobial resistance:

- Antimicrobial drugs include the likes of antibiotics, antivirals, antifungals and antiparasitics which are used to prevent and treat infections in humans, animals and plants.
- Antimicrobial Resistance (AMR) refers to the mutations in the disease-causing microbes such as bacteria, viruses, fungi and parasites which make them immune to medicines which eventually makes it harder to treat infections and increases the risk of disease spread, severe illness and death.

Data on Antimicrobial Resistance:

- According to the report by GRAM, about 49.5 lakh people suffered from a minimum of one drug-resistant infection and AMR was directly linked to 12.7 lakh deaths in 2019.
- AMR is one of the major public health challenges in India which account for nearly 30% of deaths due to neonatal sepsis across India.
 - * Most of these deaths are due to multidrug-resistant (MDR) hospital-acquired infections
- Further, about 30% of the COVID-19 deaths in India can be attributed to the failure to treat the secondary bacterial infections caused by MDR pathogens with the appropriate antibiotics.

Causes of AMR:

- Irrational use of antibiotics and other antimicrobial drugs used by the medical community, the general public and the farmers generate drug-resistant superbugs.
- The release of pharmaceutical wastes and hospital effluents into the water bodies without being adequately treated has aggravated antimicrobial resistance.

- Further, inadequate infection control measures in the hospitals and the issues with clean water, sanitation and hygiene (WASH) have resulted in the increased spread of these superbugs.

Solutions to the AMR crisis:

- Increased investment in the R&D of new antibiotics
- Development of rapid and affordable diagnostic methods
- Enhancing infection control and prevention approaches
- Formulation of antibiotic regulation initiatives across the country
 - * Example: the ban on the use of streptomycin and tetracycline in agriculture and the growth promotional use of colistin in poultry farming by the Government.
- Ensuring equitable access to life-saving antibiotics.

Recommendations:

- Antibiotic development has been impacted due to a lack of investments and the exit of big pharma companies from the AMR space because of the low return on investment.
 - * Further, the reimbursement provisions in various countries have discouraged hospitals from using a costly comprehensive antibacterial agent as cheaper generic options are available.
 - * There is an urgent need to reverse this trend and introduce a sustainable development model that helps in addressing the AMR crisis in the long run.
- The use of push-pull model
 - * Where “push” incentives lower the cost to develop a new antibacterial drug and the “pull” incentives reward only a successful result.
 - * Small pharma companies being provided with early-stage funding from public-private partnerships is an example of the push model.
 - * The pull factor refers to providing government contracts to firms that develop crucial antibiotics for drug-resistant infections.
- Further, an AMR Action Fund can be created that can be used to address the challenges in the development of new antibiotics and boost their development.

Nut Graf

With AMR being a significant health crisis in India and India being ranked as one of the top countries of the world in total consumption of antibiotics for human use, there is a need to create a sustainable drug model in India which requires robust investment in R&D from both public and private sectors.

Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.

2. Revamping India's school health services

- » Mains: School health services – Significance; challenges and recommendations to improve.

Background:

- School health services have remained largely neglected in India. The COVID-19 pandemic has only brought to light the importance of health services everywhere including in schools.
- In this context, the article analyses some of the problems in the school health services segment and makes recommendations.

Concerns with respect to school health services in India:

- There has been an excessive focus on curative-focused services while there continues to be a neglect of preventive healthcare. Healthcare needs are often equated with medical care needs. Aspects such as unhealthy dietary habits, irregular sleep, lack of physical activity, mental, dental and eye problems, sexual behaviour, and the use of tobacco and other substances, addiction, etc. are often overlooked.
- Most interventions in the domain of school health services have focused mostly on nutrition provision and neglected other equally important aspects such as the timely and quality provision of healthcare services within school premises.

Recommendations:**Recognizing the importance of school health services:**

- There is a need to recognize the importance of school health services in the post-pandemic period given the age-specific health needs of schoolchildren.
- The provision of school health services should become a top policy priority for the administration.
- The states should review the status of existing school health services in India and draw up a road map to revamp and strengthen them, along with a dedicated budgetary allocation. The dedicated financial allocation will help bring sufficient human resources and infrastructure into the segment.

Partnership and collaborative effort needed:

- There is the need to ensure multi-stakeholder partnership for school health services while also ensuring internal collaboration between health and education departments within the government for better effectiveness of the interventions.
- A convergence of the National Health Policy, 2017 and National Education Policy, 2020 should result in the provision of comprehensive school health services in every Indian State.

Comprehensive healthcare:

- There is a need to ensure comprehensive school health services in the form of preventive, promotive and curative services.
 - * The health-promoting schools (HPS) initiative observed in many countries of Europe might be worth emulating in India.
- School health services apart from catering to curative care must also promote positive health, raise health consciousness in children and enable the provision of a healthy school environment.
- Requisite health education should be imparted to the school children and healthy lifestyles should be promoted among them as this will lay the foundations of healthy behaviour for the rest of their life.
- Subjects such as adolescent sexual health, mental health, menstrual hygiene, etc. should be integrated into regular classroom teaching.
- School health services should have components of screening leading to early diagnosis and care and/or referral and support as appropriate.

FRESH approach:

- Based on the FRESH framework – an acronym for Focusing Resources on Effective School Health, as suggested by UNESCO, UNICEF, the World Health Organization (WHO) and the World Bank, school health services need to focus on the following four core areas i.e., water, sanitation and the environment; skills-based health education and school-based health and nutrition services.

Nut graf:

A robust and comprehensive school health service system in India is necessary to ensure the good physical and mental health of the school-going children. This along with quality education can help India reap the rich demographic dividend it possesses.

3. Medical and Wellness tourism

» Mains: Promotion of medical tourism in India

Context:

- Recently, the Union Tourism Ministry has formulated a National Strategy and Roadmap for Medical and Wellness Tourism.

What is medical and wellness tourism?

- It is a practice of traveling across international borders for the purpose of maintaining, improving or restoring health through medical intervention.

National strategy document:

- It is aimed at creating a strong framework and cooperation amongst the Union government and State Governments and the Private Sector for promoting India as a Medical Value Travel (MVT) and Wellness destination.
- The Ministry has constituted a National Medical and Wellness Tourism Board with the Hon'ble Tourism Minister as its chairman in order to provide a dedicated institutional framework to take forward the cause of the promotion of Medical Tourism.

Document focuses on the following key pillars:

- Governance and Institutional Framework
- Enhancement of accessibility for Medical Value Travel
- Develop a brand for India as a wellness destination
- Enable digitalization by setting up Online Medical Value Travel (MVT) Portal
- Strengthen the ecosystem for medical and wellness tourism
- Promoting Wellness Tourism

Advantages of India as a favourable destination:

- Most of the health sector professionals like surgeons and doctors here are trained or have worked at some of the institutions in Europe, the U.S. or other developed nations.
 - * They are fluent in English.
- Globally accredited medical and diagnostic equipment is available at many Indian hospitals.
- Almost 1000 recognized nurses-training centres are present in India, mostly attached to teaching hospitals and nearly 10,000 nurses graduate every year.
- India is a budget-friendly destination compared to other countries with luxury amenities.

SOCIAL ISSUES

Role of women and women's organization and associated issues

1. Gender Gap Index

- » Prelims: Gender Gap Index
- » Mains: India's performance in Global Gender Gap Index 2022

Context:

- • The World Economic Forum released the Global Gender Gap Index, 2022.

Global Gender Gap Index

- The Global Gender Gap Report was published by the World Economic Forum for the first time in 2006
- This index provides a means to gauge equity
- Aim: to measure gender-based gaps in access to resources and opportunities in those countries
- The index benchmarks the state and evolution of gender parity and is measured across four key pillars namely:
 - * Economic Participation and Opportunity
 - * Educational Attainment
 - * Health and Survival
 - * Political Empowerment
- The index measures and scores on a scale of 0 to 100 and is interpreted as the efforts undertaken towards parity or percentage of the gender gap that has been closed.

Global Gender Gap Index 2022:

- 146 countries were assessed this year.
- The report notes that in 2022, the global gender gap has been closed by 68.1% and it would take about 132 years to reach full parity at the current rate of progress.
- India has been ranked 135th among the 146 countries. (India was ranked 140 out of 156 countries in 2021)

India's performance in Global Gender Gap Index 2022:

Index/sub-index	2022 (146 countries)		2021 (156 countries)	
	Rank	Score	Rank	Score
Global Gender Gap Index	135	0.629	140	0.625
Political empowerment	48	0.267	51	0.276
Economic participation & opportunity	143	0.350	151	0.326
Educational attainment	107	0.961	114	0.962
Health and survival	146	0.937	155	0.937

Source: World Economic Forum

Image Source : World Economic Forum

- India has performed poorly in the index compared to its neighbouring countries such as Bangladesh (ranked 71), Nepal (ranked 96), Sri Lanka (ranked 110), and Bhutan (ranked 126). However, India has performed slightly better than Pakistan and Afghanistan which are ranked 145 and 146 respectively.
- **Economic Participation and Opportunity**
 - * This sub-index includes aspects such as percentage of women in the labour force, equality of wages between men and women, income earned by women, etc.
 - * o India has been ranked 143 out of the 146 countries in this Index
 - * o India's score saw a slight improvement in this index compared to 2021.
 - * o India's score is much lower than the global average, and only Iran, Pakistan and Afghanistan are behind India on this metric.
- **Educational Attainment**
 - * This sub-index includes dimensions like literacy rate and the enrolment rates in the various levels of the education system.
 - * India has been ranked 107th and its score has slightly decreased as compared to 2021.
- **Health and Survival**
 - * This includes metrics like sex ratio at birth and healthy life expectancy
 - * India is ranked last i.e. 146th among as many countries.

Political Empowerment

- * This sub-index includes aspects such as the percentage of women in Parliament, the percentage of women in ministerial positions etc.
- * India is ranked 48th out of 146.
- * However, India's score has been reduced since 2021.

Nut Graf:

India has been ranked as one of the least performing countries in the Global Gender Gap Index 2022. India has fairly better in the Political Empowerment aspect but has been ranked poorly in other sub-indices such as Health and Survival, Educational Attainment and Economic Participation and Opportunity.

Indian Society and diversity – Salient aspects.

2. Living conditions of the Scheduled Tribes (STs)

- » Prelims: Tribal Sub-plan
- » Mains: Empowerment of STs in India

Context:

- As per the data from the National Family Health Surveys (NFHS) conducted by the Ministry of Health and Family Welfare, there have been considerable improvements in the lives of Scheduled Tribes (ST).

NFHS Data: 2005-06 vs 2019-21

- Infant Mortality Rate has declined from 62.1 to 41.6,
- Under Five Mortality Rate has declined from 95.7 to 50.3,
- Institutional Delivery has increased from 17.7% to 82.3 % and
- Immunization of children aged 12-23 months has increased from 31.3 % to 76.8 %.

Other signs of improvement:

- The literacy rate has improved from 47.1% in 2001 to 59% in 2011.
- The Ministry of Statistics & Programme Implementation's Periodic Labour Force Survey report (2020-21) reveals that the literacy rate for STs increased to 71.6 %.

Government initiatives for the overall development of tribal people across the country:

- Tribal Sub-Plan
- Schedule Tribe Component
- Development Action Plan for STs (DAPST)

Population and Associated Issues

3. India set to overtake China in population terms

- » Prelims: World Population Prospects 2022
- » Mains: outcomes of World Population Prospects 2022 and its significance to India.

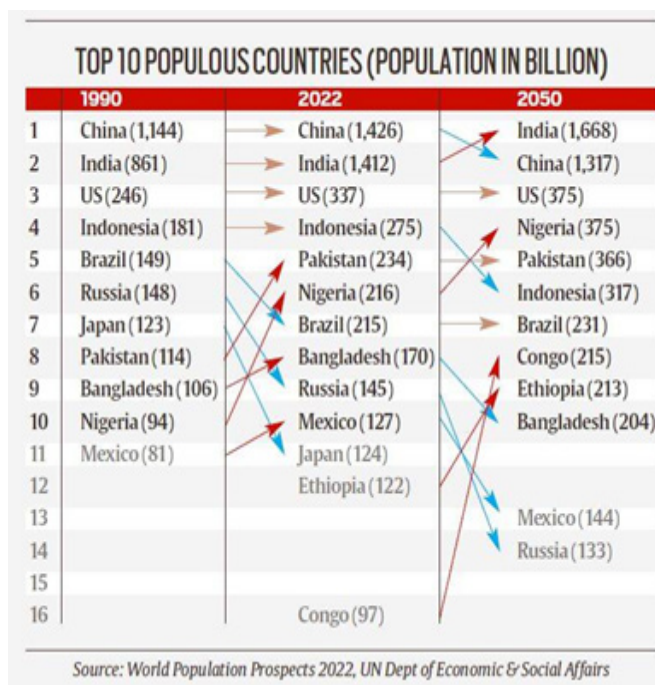
Context:

The World Population Prospects 2022 was released by the United Nations Department of Economic and Social Affairs on World Population Day.

World Population Prospects 2022:

- It is the 27th edition of the official estimates and projections of the global population that have been published by the United Nations since 1951.
- They form an all inclusive demographic data to assess population trends at the global, regional and national levels.
- This report offers a summary of global population trends focusing on the period from 1950 to 2050 and presents an overview of key demographic prospects during the second half of the present century.
- These data are used in the calculation of many development indicators used to monitor global progress towards the achievement of the SDGs.

Highlights of the report:



- The world population, which stood at almost 7.9 billion in 2021, is projected to reach 9.5 billion in 2050, with India expected to surpass China as the world's most populous country in 2023.

- The report estimates the world population to reach 8 billion by the end of 2022 and grow to 10.4 billion in 2100.
- Sub-Saharan African nations are projected to continue growing through 2100 and to contribute more than 50% of the global population increase predicted through 2050
- Globally, life expectancy stands at 72.8 years in 2019, an increase of almost 9 years since 1990. Life expectancy at birth for women is 73.8 and for men it stands at 68.4.
- In 2021, the average fertility (number of children born to a woman in her reproductive lifetime) stood at 2.3 births per woman which is projected to decline to 2.1 births per woman by 2050.
- More than 50% of the projected increase in world population up to 2050 will be concentrated in just eight countries namely Congo, Egypt, Ethiopia, India, Nigeria, Pakistan, the Philippines and the United Republic of Tanzania.
- As per the estimates, India will have a substantial population of working age people who will be expected to support a growing number of the aged.
- The compulsion to provide quality climate friendly jobs will only continue to increase.
- The labour force participation of women has abbreviated and falling fertility means many more will demand better jobs in a transitioning economy.
- NFHS Data shows that the usage of modern contraceptives increased with income.
 - * 66.3% of women who are employed are more likely to use modern contraception compared with 53.4% of women who are not.

Nut Graf:

Extensive data from world population prospects and NFHS shows that the development is the best contraceptive. Uneven and concentrated population growth puts additional pressure on resources and poses challenges to the achievement of the Sustainable Development Goals (SDGs). Focus of policies should now be to reach the unreached, marginalised sections on the basis of identity, geography and class.

Significance for India

- As per the WPP 2022, India's population is expected to grow from its current 1.4 billion people to 1.67 billion in 2050 and it is expected to peak at 1.7 billion sometime in 2064.
- By 2050 China will have 1.3 billion people, of whom 500 million will be past the age of 60. India's population, by contrast, would have peaked at 1.7 billion, of whom only 330 million will be 60 years or older giving a much longer advantage of Demographic dividend to India.
- As per studies, India's potential workforce will rise from 885 million to 1.08 billion people over the next 20 years and remain above a billion people for half a century.
- Developments in automation and digitisation, shifting supply chains along with rising incomes, urbanization and demographic shifts with a better focus on health and sustainability accelerate to create \$2.5 trillion of economic value in 2030 and support 112 million jobs, or about 30% of the non-farm workforce in 2030.
- Because of the progressive population control measures of India, it does not have to suffer the consequences of a prematurely ageing society with a skewed gender ratio similar to China.

Implications of population growth for India:

- As per 5th National Family Health Survey released in 2021, for the first time in India the total Fertility Rate (TFR) had hit 2.0 or below the replacement rate of 2.1.
- This declining trend in the population is in line with trends in developed countries and is expected to translate into enhanced living standards per capita and better gender equity.
- Because this TFR has been achieved across most States in India, population decline in India's most populous states, Uttar Pradesh and Bihar can be achieved without coercive state policies.

EDUCATION

Management of Social Sector/Services relating to Education.

1. National Institutional Ranking Framework (NIRF)

- » Prelims: National Institutional Ranking Framework (NIRF) 2022
- » Mains: Significance of NIRF

Context:

- National Institutional Ranking Framework (NIRF) 2022.

National Institutional Ranking Framework (NIRF):

- NIRF is a methodology adopted by the Ministry of Education to rank institutions of higher education in India.
- It was launched in September 2015 by the Minister of Human Resource Development.
- It is prepared as an annual report card on the performance of the higher education institutions in India.
- NIRF ranks education institutions under various categories like Universities, Medical, Law, Engineering, Management, Overall, etc.
- It mainly uses five key parameters to assess education institutions, they are:
 - * Teaching, learning and resources
 - * Research and professional practice
 - * Graduation outcome
 - * Outreach and Inclusivity
 - * Peer perception

Parameter	Marks	Weightage
Teaching, Learning & Resources	100	0.30
Research and Professional Practice	100	0.30
Graduation Outcomes	100	0.20
Outreach and Inclusivity	100	0.10
Perception	100	0.10

Image Source: PIB

National Institutional Ranking Framework (NIRF), 2022:

- IRF 2022 is the seventh edition of the National Institutional Ranking Framework (NIRF).
- About 4,786 institutions were evaluated based on five key parameters.
- The Indian Institute of Technology, Madras (IIT-M) was ranked as the top higher educational institute in India which was followed by the Indian Institute of Science (IISc), Bengaluru, and IIT Bombay.

Nut Graf

The NIRF is the first-ever effort made by the Government of India to rank higher education institutions in the country and is playing a pivotal role in ensuring that the education institutions are undertaking necessary measures to better their ranking which in turn is contributing towards making India's education institutions globally competitive.

GOVERNANCE

Important aspects of governance, transparency and accountability

1. Protecting whistle blowers

- » Prelims: Right to Information (RTI) Act
- » Mains: Challenges associated with the whistleblowers and RTI activists in India and key recommendations.

Right to Information (RTI) Act, 2005:

- The Right to Information (RTI) Act was enacted in 2005 to promote transparency and accountability in the working of every public authority.
- This Act provided for the right to information for citizens to secure access to information under the control of the public authority.
- The Act also mandates timely response to citizen requests for government information.
- The RTI gives the citizens the power to participate in the policymaking process and has played a key role in making public authorities accountable and transparent in their functioning.
- RTI has been extensively used by various activists, lawyers, bureaucrats, researchers, and journalists.
- RTI is a remarkable example of participatory democracy.

Challenges faced by RTI Activists and Whistle blowers:

- There have been several instances of killing and harassment of RTI activists since the introduction of the RTI Act.
 - * Bihar is among the top states with the highest number of deaths of RTI activists.
- These events of killings have raised questions about the protection of people who try to seek accountability and the responsibility of states to extend legal assistance, time-bound grievance redressal, compensation, and dignified access to justice to the families of those killed.
- RTI activists and whistleblowers have been actively working to bring transparency and accountability to the implementation of important social welfare schemes such as the Public Distribution System (PDS) and MGNREGA.
 - * The killing of such activists will have severe consequences on the implementation of such programmes.
- The brutal killing of whistleblowers, intimidation of their families and the following inaction by the government and police have caused the RTI users to struggle for justice.

- Experts feel that these instances of killings of RTI users and activists are a threat to democracy itself.

Recommendations:

- Introducing legal and institutional safeguards – there is a need for establishing a socio-legal system that recognises RTI activists and other whistleblowers as human rights defenders and extends protection to them.
- Disclosure of actionable information – it is known that the information sought by the deceased activists must have been discoloured compulsorily in the first place under Section 4 of the RTI Act
 - * State governments should make efforts to disclose such actionable information.
 - * Rajasthan's Jan Soochna portal and Karnataka's Mahiti Kanaja are welcome steps in this regard.
- Timely action – the governments should command the law-enforcement agencies to act in a time-bound manner to complete investigations in all cases where RTI users are harassed and ensure that due compensations are extended to the families of victims.
- The disclosure of the requested information – fast-paced disclosure of information in case of harassment or killing of an activist will send a message to the perpetrators that such unwarranted action will result in greater public scrutiny.
- Effective legislation to protect whistleblowers – the government must act immediately and notify the proposed Whistle Blowers Protection Act, 2014.
 - * States like Bihar and Maharashtra which have experienced a high number of such attacks must formulate their own act or legislations to safeguard whistleblowers.

Nut Graf:

Acknowledging the crucial role played by the RTI activists and whistleblowers in unearthing corruption and mismanagement of public funds along with ensuring accountability in the functioning of public authorities, immediate measures are required to address the plight of activists and whistleblowers.

DISASTER MANAGEMENT

Disaster and Disaster Management

1. Manipur landslides

- » Prelims: National Landslide Susceptibility Mapping project.
- » Mains: Need to pre-empt anthropogenically instigated disasters.

Context:

- The unfortunate landslide at Tupul area in Manipur's Noney district led to the loss of 38 lives, this has been exacerbated by another landslide blocking the Ijei river. There has been an alarming number of landslides occurring in the North Eastern Himalayan states in the past decade.

Need for disaster avoidance over disaster mitigation:

- The present disaster's location indicates that due diligence and proper assessment have not happened. The disaster occurred at a railway construction site in a landslide-prone area. This is a major red flag considering the history of landslides in the area.
- The Environment Ministry has issued a notification identifying the causes of landslides in Manipur as "a result of modification of slopes for construction, widening of the road, quarrying for construction materials, fragile lithography, complex geological structures, and heavy rainfall". This itself indicates the presence of anthropogenic activity inducing disaster.
- The need for Landslide mapping and Zonation of Hazardous areas is further important due to the presence of very high, high, or moderate hazard zones. The National Landslide Susceptibility Mapping project also needs to be utilized in this regard.
- Due consideration has to be paid to the various weather-based geographical developments such as the uncertain nature of rains, with the monsoon being more intense this year compared to predictions.
- The early warning system for landslides should be developed and refined by the Geological Survey of India across vulnerable States.

Way Forward:

- Urgent emphasis needs to be placed on the post-facto exercise by the State governments in the vulnerable areas regarding the sufficient soil and stability tests before undertaking the construction over the sites of infrastructural works.
- The developmental demands of the States in the Northeast and improving the connectivity projects to uplift a relatively economically backward region are understandable but the disasters such as the landslide

in Tupul indicate that sustainable development is to be pursued otherwise the growth aspect would be deaccelerated including the loss of innocent human lives.

GEOGRAPHY

Important Geophysical Phenomena such as earthquakes

1. Measuring quakes

- » Prelims: Richter scale
- » Mains: Earthquake-prone regions in India; Mitigating the impact of earthquakes.

Context

- Recently an earthquake of magnitude 5.9 on the Richter scale struck eastern Afghanistan, killing over a thousand and injuring many more. The earthquake struck about 44km from the city of Khost and tremors were felt as far away as Pakistan and India.
- In this context, the article discusses the possibility of having early warning systems to mitigate the damage caused by earthquakes.

Background:

Causes and types of earthquakes:

- According to the theory of plate tectonics, the Earth's crust consists of lithospheric plates which are continuously moving relative to each other. These plates can get stuck at their edges due to friction. When the stress on the edge overcomes the friction, there is an earthquake that releases seismic energy in waves that travel through the earth's crust towards the surface resulting in tremors on the ground.
- Apart from such tectonic reasons, earthquakes can also be of the induced type caused by human activity like tunnel construction, filling reservoirs and implementing geothermal or fracking projects, or volcanic activities or can also be of the collapse type of earthquakes.

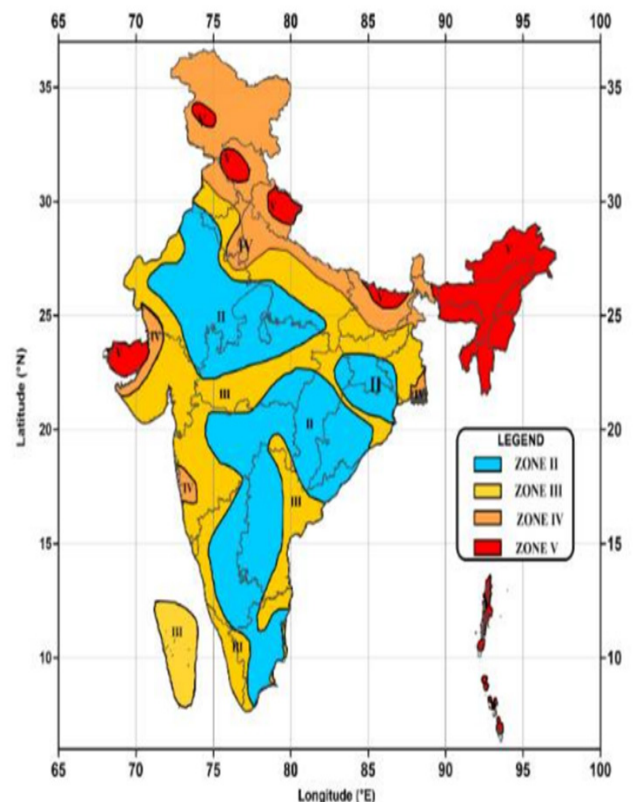
Measurement of earthquakes:

- Earthquakes are measured by seismic stations which measure the shaking of the ground.
 - * The National Centre for Seismology under the Ministry of Earth Sciences is the nodal agency of the Government of India for monitoring earthquakes in and around the country. For this purpose, NCS maintains a National Seismological Network (NSN) consisting of 115 observatories spread across the country. The information about earthquakes reported by NCS is being disseminated to the concerned central and state disaster authorities in the least possible time to initiate adequate mitigation measures.
- The Richter magnitude scale is used as a measure of the magnitude of an earthquake. The magnitude of an earthquake is the logarithm of the amplitude of the waves measured by the seismographs. Given the relationship between the quantum of energy released

and the wave amplitude, it is possible to convert the measured wave amplitude into the energy released for that earthquake.

Earthquake-prone regions in India:

- A total of 59% of the land mass of India (covering all states of India) is prone to earthquakes of different intensities.
- Based on seismicity, the intensity of earthquakes experienced, and geological and tectonic qualities of a region, India is divided into four seismic zones. Zone V is seismically the most active region, while zone II is the least. Approximately, 11% area of the country falls in zone V, 18% in zone IV, 30% in zone III and remaining in zone II.



Mitigating the impact of earthquakes:

Earthquake prediction:

- Earthquake prediction involves determining when and where earthquakes will occur.
- Since the parameters of the earthquake are unknown, it is near impossible to make scientifically valid predictions for a certain day or month.

Early warning systems for earthquakes:

- In the case of seismic energy released during earthquakes, two kinds of waves are noticed. They are the primary wave which reaches first, and the second one called the secondary wave, are more destructive.
- If the primary waves can be measured in a timely manner, this can help predict secondary waves and their amplitudes. If it is known that the amount of energy released is extremely high, trains and power grids can be shut down and the damage minimised.
- Notably, Japan has a successful early warning system in place which has helped the nation take precautionary steps to mitigate the adverse impact of earthquakes.

Earthquake preparedness:

- To reduce the impact of earthquakes on buildings and other physical capital, these structures should be so designed to make them capable of withstanding earthquakes.
- Seismic retrofitting can be used to alter existing buildings to increase their earthquake protection.

Nut Graf:

Given the potential of earthquakes to cause damage to life and property, all measures to mitigate the impact of earthquakes like the development of an early warning system for earthquakes and earthquake preparedness needs to be prioritized.

World's physical geography and places in news

2. Snake Island

» Prelims: Snake Island

Context

- Russian troops have withdrawn from Snake Island in Ukraine.

- Snake Island which is also referred to as Serpent Island or Zmiinyi Island, is an island located in the Black Sea and belongs to Ukraine.
- It is an "X-shaped" island situated about 25 miles off the southern coast and is a critical outpost for controlling shipping lanes.
- Snake Island lies close to the mouth of the River Danube, which delineates Romania's border with Ukraine.
- The bedrock of the island consists of Silurian and Devonian sedimentary rocks.
- The closest coastal location to the island is Kubanskyi Island on the Ukrainian part of the Danube Delta.
- The status of Snake Island is of significance for the delimitation of the continental shelf and exclusive economic zones between Romania and Ukraine.

Places in news

3. Polavaram Dam

» Prelims: Polavaram Dam

Context

- The Polavaram irrigation project has been receiving huge inflows of flood waters owing to heavy rains in Maharashtra.

Polavaram Dam:

- It is a multi-purpose irrigation project built across the River Godavari in Andhra Pradesh.
- The project helps in developing irrigation, hydropower and drinking water facilities in East Godavari, Vishakhapatnam, West Godavari and Krishna districts of Andhra Pradesh.
- The reservoir covers the Papikonda National Park.
- The Polavaram irrigation project has been accorded the status of a "National project" by the Central Government.



Image Source: BBC

SOCIAL JUSTICE

Welfare schemes for vulnerable sections of the population by the Centre and States

1. Disabled people

- » Prelims: Draft of the national policy for persons with disabilities (PwD)
- » Mains: The need for a new national policy for PwD, the concerns associated with it and key recommendations.

Context

- The Department of Empowerment of Person with Disabilities (DoEPwD) notified the draft of the national policy for persons with disabilities.

Draft of the national policy for persons with disabilities:

- The draft policy recognises aspects such as early identification and prevention, education, skill development, social security, and disaster management as areas that require interventions to enable persons with disabilities (PwD) to participate fully and effectively in society.
- It also recognises “accessibility” as a key area for intervention which is a prerequisite for guaranteeing rights like health, education, employment and justice to PwD.
- The policy mandates specific commitments to the central government to secure accessibility, develop a convenient environment, transportation, information and communication systems (ICTs), and other facilities and services.
- The policy further makes an effort to introduce “universal design” as a key guiding principle towards making public spaces accessible to not just PwD but to all.

The need for a new national policy for PwD:

- The signing of the United Nations Convention on Rights of Persons with Disabilities.
- The introduction of the Rights of Persons with Disabilities Act 2016 has raised the types of disabilities from 7 to 21.
- India is also a party to the Incheon Strategy for Asian and Pacific Decade of Persons with Disabilities, 2013-2022 famously known as the “Incheon commitment”.
 - * It was prepared under the aegis of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).
 - * It provides 10 goals for Asia-Pacific countries to ensure the inclusion and the empowerment of PwD and conformity with the Sustainable Development Goals 2030.

The concerns associated with the policy:

- The key concern is that the policy fails to include any commitment to the political upliftment of PwD.

- Political empowerment and the inclusion of PwD have not yet been addressed in India’s democratic discussions and this is reflected in the fact that India does not have any policy commitment that is aimed at improving the political participation of PwD.
- The exclusion of disabled people from the political ecosystem takes place in various ways such as the inaccessibility of the voting process, challenges to their participation in politics and lack of representation.

The issue of inadequate representation:

- Representation plays a crucial role in advancing the interests of the marginalised communities. However, persons with disabilities are not adequately represented at all the levels of government in India.
- Further, there is no mechanism to maintain data on the disability aspect of representatives.
 - * The first visually disabled Member of Parliament in independent India was Sadhan Gupta and this is not mentioned in any of the political discourse.
- However, there have been instances where the States have undertaken efforts to increase their representation.
 - * Example: Chhattisgarh started nominating at least one disabled person in each panchayat.

The importance of political participation for PwD:

- Article 29 of the UN Convention on Rights of Persons with Disabilities says that states must “ensure that persons with disabilities can effectively and fully participate in political and public life on an equal basis with others, directly or through freely chosen representatives”.
- The Incheon commitment also calls for participation in political processes and in decision-making.
- The anti-discrimination commitment under the Rights of Persons with Disabilities Act 2016 recognises the political aspect and says that the participation of disabled people should be allowed to realise their human rights and fundamental freedoms.
- Section 11 of the Rights of Persons with Disabilities Act says that the Election Commission must undertake efforts to make all the polling stations accessible to PwD and that all the materials related to the electoral process are easily understandable and accessible to them.

Recommendations:

- Despite various provisions, disabled people still face accessibility issues during various electoral processes. The Election Commission of India must undertake measures such as using braille electronic voting machines and wheelchair services at all polling centres.

- * Also, the political parties must ensure proper accessibility measures for the participation of PwD in party meetings, transport facilities for campaigning, etc.
- Experts recommend a four-pronged approach that includes:
 - * Undertaking capacity-building measures at PwD organisations and extending training in the electoral system, government structure, and basic organisational and advocacy skills.
 - * Bring in changes to the legal and regulatory frameworks that encourage the political participation of disabled people.
 - * Collaborate with civil societies to conduct domestic election observation or voter education campaigns.
 - * Formulate a framework for political parties to conduct an outreach programme to PwD during election campaigns.
- The Central and State governments must work together with other stakeholders to ensure the political participation of PwD.

Nut graf:

Despite the Draft of the national policy for persons with disabilities being lauded for its objectives and intent, the aspects such as political participation and representation must be included in the policy as the inclusiveness and empowerment of PwD cannot be achieved without political inclusion.

Vulnerable sections of the population and mechanisms constituted for the protection and betterment of these vulnerable sections.

2. LGBTQIA++ community

- » Prelims: Various judgements regarding the rights of LGBTQIA++ community in India
- » Mains: the rights of the LGBTQIA++ community members in India, key challenges faced by them and various recommendations.

Context

- Challenges faced by LGBTQIA++ communities in India.

LGBTQIA++ communities:

- The LGBTQIA+ community is a diverse group with varying sexual orientations and gender identities which includes Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual and other identities individuals.

Evolution of LGBTQIA++ rights in India:

- Naz Foundation v/s Govt. of NCT of Delhi (2009) judgement: the Delhi High Court said that Section 377 of the Indian Penal Code and other legal restrictions

on adult, consensual, and non-commercial same-sex conduct is a violation of fundamental rights guaranteed under the Constitution of India.

- Suresh Kumar Koushal v/s Naz foundation (2013): in this judgement, the Supreme Court overruled the 2009 Delhi High court ruling and held Section 377 of IPC legal.
- National Legal Services Authority v/s Union of India case (2014): this judgement is considered to be a milestone as the SC recognised transgender individuals as the “third gender”.
 - * The apex court further held that the fundamental rights granted under the Constitution will be equally applicable to them, and gave them the right to self-identification of their gender as male, female or third gender.
 - * The court directed the Union and State Governments to introduce various social welfare schemes to the community and treat them as socially and economically backward classes thereby extending reservations to them in educational institutions and for public appointments.
- Navtej Singh Johar v, Union of India (2018) judgement: in this landmark judgement, the Supreme Court decriminalised homosexuality by ruling that Section 377's application to acts of homosexuality between consenting adults was unconstitutional.

Key challenges faced by the members of LGBTQIA++ communities in India:

- Social stigma: The individuals of the community often experience life-long dissonance from the family members, deep-rooted stigma, discrimination and abuse.
 - * This causes distress, self-hate and suffering to these individuals.
- Mental illness: Reports suggest that LGBTQIA++ individuals suffer about 1.75 times more anxiety and depression compared to the rest of society.
 - * Further, individuals in the transgender community suffer from nearly 2.4 times higher anxiety and depression.
 - * This is mainly because society marginalises these individuals irrespective of their accomplishments.
- Inadequate health services: A study by the Raahat Project points out that a significant number of LGBT individuals preferred to pay and seek help in private hospitals/clinics rather than availing government healthcare facilities due to the fear of harassment and stigma.
 - * Also, many psychiatrists in the country still consider diverse sexual orientations and gender identities as a disorder and they prescribe “correctional therapies”.

Way forward:

- Spread awareness – It is important to pursue country wide awareness and capacity building campaigns to bring about a behaviour change among these individuals and a change in the attitude of the general public.
- Comprehensive strategy – there is a need to formulate a holistic healthcare strategy that includes aspects such as mental illness and mental health.
- Community building – also a key role in bettering the mental health of LGBTQIA++ members.
- Multiple stakeholder approach – all the stakeholders which include educational institutions, communities, healthcare professionals, mental health experts, police, etc. must be consulted before undertaking any important interventions.

Nut graf:

Despite the rapid transformation of LGBT rights in India in recent years, the members of the community still face serious challenges and remain at risk of life-long mental illnesses. There is an immediate need for interventions by the concerned authorities and organisations to address these challenges faced by LGBT individuals.

Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes

3. Mission Vatsalya Scheme

- » Prelims: Mission Vatsalya Scheme

Context:

- Ministry of Women and Child Development issues Guidelines for Mission Vatsalya Scheme.

About Mission Vatsalya Scheme:

- The Ministry of Women and Child Development is implementing a Centrally Sponsored Scheme "Mission Vatsalya" erstwhile Child Protection Services (CPS) Scheme, from 2009-10 for the welfare and rehabilitation of children.
- Objectives:
 - * To secure a healthy and happy childhood for each and every child in India, ensure opportunities to enable them to discover their full potential and assist them in flourishing in all respects, in a sustained manner,
 - * To foster a sensitive, supportive and synchronized ecosystem for the development of children, assist States/UTs in delivering the mandate of the Juvenile Justice Act 2015 and achieve the SDG goals.

- Mission Vatsalya promotes family-based non-institutional care of children in difficult circumstances based on the principle of institutionalization of children as a measure of last resort.
- Components of the mission:
 - * Improve the functioning of statutory bodies
 - * Strengthen service delivery structures
 - * Upscale institutional care/services
 - * Encourage non-institutional community-based care; emergency outreach services
 - * Training and capacity building

Issues relating to poverty and hunger.**4. State Ranking Index for NFSA**

- » Prelims: State Ranking Index for NFSA – Parameters and state performances

Context:

- The first edition of the State Ranking Index for National Food Security Act (NFSA) has been released.

About the State Ranking Index for NFSA:

- The ranking was released by the Ministry of Consumer Affairs, Food & Public Distribution.
- The states and UTs were ranked based on three parameters for the year 2022. They are:
 - * Coverage of NFSA, rightful targeting, and implementation of all provisions under NFSA
 - * Delivery platform while considering the allocation of foodgrains, their movement, and last-mile delivery to Fair Price Shops (FPS)
 - * Nutrition initiatives of the department
- The index attempts to document the status and progress of the implementation of NFSA and various reform initiatives across the country, post consultation with states.
- It highlights the reforms undertaken by States and UTs and creates a cross-learning environment and scale-up reform measures by all states and union territories.
- Although currently the index analyses only NFSA distribution, in the future, Pradhan Mantri Garib Kalyan Anna Yojana Scheme (PMGKAY) will also be taken into account.

IMPLEMENTING FOOD SECURITY		
How the 20 'general category' states ranked in terms of NFSA implementation		
TOP THREE		
Rank	State	Index score
1	Odisha	0.836
2	Uttar Pradesh	0.797
3	Andhra Pradesh	0.794
BOTTOM THREE		
18	Delhi	0.658
19	Chhattisgarh	0.654
20	Goa	0.631

Image source: <https://indianexpress.com/>

- Among the Special Category states/UTs, Tripura stood first followed by Himachal Pradesh and Sikkim.
- Among the 3 UTs where Direct Benefit Transfer (DBT) – Cash is operational, Dadra and Nagar Haveli & Daman and Diu is the top-ranked UT.

Welfare schemes for vulnerable sections of the population.

5. GOAL Programme (Going Online as Leaders)

» Prelims: GOAL Programme

Context:

- Aiming at digital empowerment of tribal youth and women through the concept of mentor and mentee.

Details:

- The second phase of the GOAL Programme (GOAL 2.0) was launched in June 2022 with an aim to digitally upskill tribal youth by promoting entrepreneurship and opening up opportunities for them using digital technology.
- GOAL is a joint initiative of the Ministry of Tribal Affairs and Meta (formerly Facebook).
- GOAL 2.0 programme will be open to all people from tribal communities. The programme aims to upskill and digitally enable youth via Facebook live sessions and Meta Business Coach, a digital learning tool.

About GOAL 1.0:

- The first phase of the GOAL programme was launched as a pilot project in May 2020 and it was completed by 2021.
- The mentees in the first phase were provided with 40+ hours of training across three course pillars:
 - * Communication and life skills,
 - * Enabling Digital Presence and
 - * Leadership and Entrepreneurship

MISCELLANEOUS

Current events of national and international importance

1. Woman mathematician from Ukraine wins Fields Medal

» Prelims: Fields Medal

Fields Medal:

- The Fields Medal often described the Nobel Prize in mathematics, is a prize awarded to mathematicians under 40 years of age at the International Congress of the International Mathematical Union.
- The International Mathematical Union is an international non-governmental and non-profit scientific organisation.

Context:

- Ukrainian mathematician Maryna Viazovska has been named as one of four recipients of the 2022 Fields Medal.

2. National Emblem

» Prelims: Facts about National Emblem and Sarnath Lion Capital

Context:

- The Prime Minister unveiled the national emblem atop the new Parliament House being constructed as part of the Central Vista Project.



- The Indian National Emblem is represented by four Asiatic lions with three lions being visible to the naked eye and the fourth one always hidden from the general view.
- The Emblem has been taken from the Sarnath Lion Capital of the Mauryan emperor Ashoka.
- The Lion Capital of Ashoka became the national emblem of India officially on January 26, 1950.
- The Emblem showcases the power, courage and confidence of the free nation.
- The Emblem depicts a two-dimensional sculpture with the words "Satyameva Jayate" (truth alone triumphs) written in Devanagari script which is borrowed from the Mundaka Upanishad.
- The Lion capital was mounted on a base of a frieze of smaller sculptures, which also includes a horse, a lion, a bull and an elephant moving in a clockwise direction which are separated by a wheel, representing the Dharmachakra of Buddhism.
 - * Each wheel consists of 24 spokes and was later adopted as part of the national flag.

Sarnath Lion Capital of Ashoka:

- The structure was seven feet tall and was made of polished sandstone.
- It was constructed in 250 BC to commemorate the first sermon of Gautama Buddha, where he is said to have shared the "Four Noble Truths of life".
- It represents courage, power and pride.
- The four animals are said to be guardians of the four directions.
- The abacus was mounted on an inverted lotus which is a symbol of Buddhism.
- Chinese traveller Hiuen Tsang has left a detailed account of Asoka's lion pillar in his writings.

3. International Day of Cooperatives

Context

- 100th International Day of Cooperatives

International Day of Cooperatives

- International Co-operative Day is celebrated on the first Saturday in July annually since 1923 by the International Co-operative Alliance.
- International Cooperative Day is a celebration of the cooperative movement.

- Since 1995 the United Nations' International Day of Co-operatives has been jointly celebrated alongside International Co-operative Day.
- 100th International Day of Cooperatives was celebrated on 02 July 2022.
- It is popularly known as #CoopsDay and the slogan for 2022 is "Cooperatives Build a Better World".

What are Cooperatives?

- Co-operatives are associations and enterprises in which people come together and effectively improve their lives while contributing to the economic, social, cultural and political advancement of their community and nation.
- Cooperatives are found in fields like health, agriculture, production, retail, finance, housing, employment, education, social services and many more.
- Co-operatives foster external equality, are community-based and also are committed to the sustainable development of their communities – environmentally, socially and economically.

Significance of International Day of Cooperatives (IDC)

- #CoopsDay is very significant to spread the word about how a human-centred business model based on cooperative values of self-help and unity, as well as moral standards of socially responsible, can reduce inequality and start creating shared prosperity.
- The main aim of the day is to popularise cooperatives and to advance the cooperative movement's principles of worldwide solidarity, economic efficiency, equality, and global peace.
- It also strengthens and extends the partnerships between the international cooperative movement and other actors.

4. Kharchi Puja

Context

- PM greets people on the start of Kharchi Puja.

About Kharchi Puja:

- It is one of the most popular festivals of Tripura, wherein 14 gods forming the dynasty deity of the Tripuri people are worshipped.
- It is generally held in July or August and is a week-long royal Puja.
- This festival is celebrated at Agartala (Puran Agartala) in the temple premises of the fourteen gods.
- It attracts thousands of people.
- The Puja is held after 15 days of 'Ama Pechi' which refers to the menstruation of Mother Earth.

5. Har Ghar Jal

Context

- Burhanpur, Madhya Pradesh becomes the first Har Ghar Jal certified district in the country.

Details:

- The Jal Jeevan Mission was launched in 2019 with the objective of bringing tap water connections to every rural household of the country by 2024.
- Jal Jeevan Mission – Har Ghar Jal aims to make available safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India.

PRACTICE QUESTIONS

1. Consider the following statements with respect to Anthrax: (Level – Difficult)
 1. Anthrax is a serious infectious disease caused by gram-negative, rod-shaped bacteria known as *Bacillus anthracis*.
 2. It mainly affects animals. Humans can be infected through contact with an animal or by inhaling spores.
 Which of the statements given above is/are incorrect?
 - A. 1 only
 - B. 2 only
 - C. Both
 - D. None

2. Which of the following statements is/are correct? (Level – Medium)
 1. The Polar Satellite Launch Vehicle (PSLV) is a four-stage rocket.
 2. The PSLV Orbital Experimental Module (POEM) is a platform that will help perform in-orbit experiments.
 3. POEM will derive its power from solar panels mounted around the PS4 tank, and a Li-Ion battery.
 Options:
 - A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3

3. With respect to the National Security Council (NSC), which of the following statements is/are correct? (Level – Medium)
 1. The NSC was established in 1998 by the government of AB Vajpayee.
 2. Before the NSC was formed, these functions were carried out by the Cabinet Secretary.
 3. The NSC is headed by the National Security Advisor (NSA).
 Options:
 - A. 1 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3

4. Snake Island recently seen in the news is part of (Level – Easy)
 - A. Japan
 - B. Vietnam
 - C. Ukraine
 - D. Sweden

5. With reference to “Gucchi” sometimes mentioned in the news, consider the following statements: (Level – Difficult)
 1. It is a fungus.
 2. It grows in some Himalayan forest areas.
 3. It is commercially cultivated in the Himalayan foothills of north-eastern India.
 Which of the statements given above is/are correct?
 - A. 1 only
 - B. 3 only
 - C. 1 and 2
 - D. 2 and 3

6. With respect to Cess, which of the following statements is/are correct?
 1. It can be levied on both indirect and direct taxes.
 2. If the cess collected in a particular year goes unspent, it cannot be allocated for other purposes.
 3. The central government does not need to share the cess with the state government either partially or in full.
 Options:
 - A. 1 and 2 only
 - B. 3 only
 - C. 1, 2 and 3
 - D. None

7. India’s largest floating solar power project is in the State of
 - A. Andhra Pradesh
 - B. Karnataka
 - C. Maharashtra
 - D. Telangana

8. Which amongst the following cabinet committees is headed by the Union Minister of Home Affairs?
- Cabinet Committee on Security
 - Cabinet Committee on Political Affairs
 - Cabinet Committee on Economic Affairs
 - Cabinet Committee on Accommodation
9. Consider the following statements with respect to Government Bonds:
- They are issued at a discounted price.
 - They are issued with a maturity of one year or less.
- Which of the statements given above is/are correct?
- 1 only
 - 2 only
 - Both
 - None
10. "Rapid Financing Instrument" and "Rapid Credit Facility" are related to the provisions of lending by which one of the following? PYQ (2022)
- Asian Development Bank
 - International Monetary fund
 - United Nations Environment Programme Finance Initiative
 - World bank
11. Which of the following statement/s is/are correct with respect to Champaran Satyagraha of 1917? (Level - Medium)
- It was a peasant uprising led by Mahatma Gandhi.
 - It was directed against the forcible cultivation of indigo on the land of farmers.
 - The British constituted the Indigo Commission as a fact-finding committee and then came up with the Champaran Agrarian Law in 1918 to protect the farmers from forced cultivation of Indigo in the aftermath of the Champaran Satyagraha.
- Options:
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
12. Consider the following statements with respect to Konark Sun Temple. (Level - Easy)
- It is believed to have been built by King Narasimhadeva I of the Eastern Ganga dynasty in the 13th century AD.
 - It is based on the Kalinga architecture style of temple building.
 - It is a designated UNESCO world heritage site.
- Which of the following statements are correct?
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
13. Consider the following pairs: (Level - Medium)
- | Dam | States |
|------------|--------------|
| 1. Harangi | Tamil Nadu |
| 2. Hirakud | Odisha |
| 3. Maithon | Chhattisgarh |
| 4. Tehri | Uttarakhand |
- How many pairs given above are not correctly matched?
- Only one pair
 - Only two pairs
 - Only three pairs
 - All four pairs
14. Steel slag, a by-product of steel production finds application in which of the following? (Level - Medium)
- Road construction material
 - Land fill material
 - Agricultural soil improvement
 - Soil fertilizer
 - Cement industry raw material
- Options:
- 1, 2 and 5 only
 - 1, 3 and 5 only
 - 1, 2, 3, 4 and 5
 - 2 and 4 only

15. Recently, there was a growing awareness in our country about the importance of Himalayan nettle (*Girardinia diversifolia*) because it is found to be a sustainable source of (Level - Difficult) PYQ (2019)
- Anti-malarial drug
 - Biodiesel
 - Pulp for paper industry
 - Textile fibre
16. With respect to Saharia tribe, which of the following statements is/are incorrect? (Medium)
- They are classified as Particularly vulnerable tribal group.
 - The categorization is done by the Ministry of Tribal affairs.
 - They speak Munda language that belongs to the Dravidian Language Family
- Options:
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
17. Consider the following statements with respect to 'Ant chutney (Kai Chutney)': (Difficult)
- It is a much sought after food in Odisha's Mayurbhanj district.
 - It has got the Geographical Indication (GI) tag
- Options:
- 1 only
 - 2 only
 - Both
 - None
18. Which amongst the following is the best description of Yogyakarta Principles? (Medium)
- It directs companies to undertake initiatives to promote greater environmental responsibility
 - It is a document about human rights in the areas of sexual orientation and gender identity
 - It seeks to eliminate all forms of forced and compulsory labour
 - It is an academic, non-binding study on how international law applies to cyber conflicts and cyber warfare
19. *Varroa destructor* (*Varroa mite*) is an external parasitic mite that attacks and feeds on (Difficult)
- Cotton
 - Earth Worms
 - Honey bees
 - Maize
20. Consider the following:(Level - Medium)
- Carbon monoxide
 - Nitrogen oxide
 - Ozone
 - Sulphur dioxide
- Options:
- 1, 2 and 3
 - 2 and 4 only
 - 4 only
 - 1, 3 and 4
21. Consider the following pairs of newly launched digital initiatives and their descriptions.
- Digital India Bhashini- Artificial Intelligence-based language technology solution for Indian languages.
 - Digital India GENESIS- National deep-tech startup platform to support startups in tier-II and tier-III cities of India.
 - Meri Pehchaan- National single sign on for one citizen login.
- Which of the above digital initiatives and their descriptions are correct?
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
22. Which of the following statements is/are correct with respect to reserves and production of lithium and Cobalt?
- The "lithium triangle" in Africa is believed to hold the world's biggest lithium reserves.
 - Currently, China is the world's leading lithium-producing country.
 - India is the world's largest producer of cobalt.
- Options:

- A. 1 and 2 only
 B. 3 only
 C. 2 only
 D. None of the above statements
23. Which of the following best describes the words- 'Kurinji', 'Mullai', 'Marutham', 'Neithal' and 'Paalai' mentioned in the Tamil Sangam literature?
 A. The different ecological regions
 B. The five aspects of warfare
 C. The popular flowers of the region
 D. The five famous kings of the region
24. Which of the following statements is/are correct with respect to windfall tax?
 1. A windfall tax is a tax levied by governments against certain industries/companies when economic conditions allow those industries/companies to experience above-average profits.
 2. Recently, the Union government of India has imposed a windfall tax on domestic oil producers and refiners.
 Options:
 A. 1 only
 B. 2 only
 C. Both 1 and 2
 D. Neither 1 nor 2
25. In which of the following relief sculpture inscriptions is 'Ranyo Ashoka' (King Ashoka) mentioned along with the stone portrait of Ashoka? PYQ (2019)
 A. Kanganahalli
 B. Sanchi
 C. Shahbazgarhi
 D. Sohgaura
26. Consider the following statements with regards to Section 69(A) of the IT Act:
 1. It allows the Centre to issue blocking orders to social media intermediaries "in the interest of sovereignty and integrity of India, defence of India, security of the state...."
 2. Blocking orders issued under the Act are usually confidential in nature.
 3. Any such request for blocking access must be based on reasons given in writing.
 Choose the correct code: [Level – Easy]
 A. 1 & 2 only
 B. 2 & 3 only
 C. 1 & 3 only
 D. All of the above
27. 'Karakalpakstan', recently in the news is a place in: [Level - Difficult]
 A. Turkmenistan
 B. Uzbekistan
 C. Tajikistan
 D. Kazakhstan
28. Consider the following statements with regards to the State Ranking Index for NFSA report:
 1. Odisha was given the highest ranking in the recently released first-ever edition of the index.
 2. The report was prepared by the Department of Food and Public Distribution.
 3. The ranking parameters include a focus on nutrition initiatives, coverage of NFSA, targeting, etc.
 Choose the correct code: [Level – Easy]
 A. 1 & 2 only
 B. 2 & 3 only
 C. 1 & 3 only
 D. All of the above
29. Consider the following statements with regards to the Fields Medal:
 1. The Fields Medal is awarded by the International Mathematical Union (IMU), an international non-governmental and non-profit scientific organisation that aims to promote international cooperation in mathematics.
 2. The Fields Medal is awarded every four years to one or more mathematicians under the age of 40 in recognition of "outstanding mathematical achievement for existing work and for the promise of future achievement".
 3. No woman has ever won this medal.
 Choose the correct code: [Level – Medium]
 A. 1 & 2 only
 B. 2 & 3 only
 C. 1 & 3 only
 D. All of the above

30. With reference to 'palm oil', consider the following statements:

1. The palm oil tree is native to Southeast Asia.
2. Palm oil is a raw material for some industries producing lipstick and perfumes.
3. Palm oil can be used to produce biodiesel.

Which of the statements given above are correct?
[Level – Medium]

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

31. Consider the following statements with regards to the G20: (Level – Easy)

1. It does not have a permanent secretariat or Headquarters.
2. It is an informal group of 19 countries and the European Union (EU), with representatives of the International Monetary Fund and the World Bank.
3. The US, which held the G20 Presidency in 2008, elevated the meeting of the Finance Ministers and Central Bank Governors to Heads of State, resulting in the first G20 Summit.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

32. Consider the following statements: (Level – Easy)

1. Critical minerals are elements that are the building blocks of essential modern-day technologies and are at risk of supply chain disruptions.
2. Based on their individual needs and strategic considerations, different countries create their own lists of critical minerals.
3. India and Mongolia have recently decided to strengthen their partnership in the field of projects and supply chains for critical minerals.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

33. Consider the following statements: (Level – Difficult)

1. Generally, there has been a gradual decline in per capita cereal consumption in India.
2. As per the NSSO's Household Consumption of Various Goods and Services in India, 2011-12 report, rice consumption per person per month has fallen in urban India but has increased in the rural areas.
3. As per the Foodgrains Stocking Norms of the Food Corporation of India, a stock of 275.80 lakh tonnes has to be maintained on July 1 every year.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

34. Consider the following statements with regards to Electric Vehicles: (Level – Easy)

1. The Indian government has launched the EV30@30 initiative to give a push to EV vehicle sales in the country.
2. India does not have enough lithium reserves for manufacturing lithium-ion batteries.
3. The Ministry of Power has prescribed at least one charging station to be present in a grid of 3 km and at every 25 km on both sides of the highways.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

35. Consider the following statements in respect of the 32nd Summer Olympics: (Level – Medium) PYQ (2021)

1. The official motto for this Olympics is "A New World".
2. Sport Climbing, Surfing, Skateboarding, Karate and Baseball are included in this Olympics.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

36. Consider the following statements with regards to the Central Information Commission: (Level – Easy)
1. It is a constitutional body that came into being in 2005.
 2. They are appointed by the President on the recommendation of a committee consisting of the Prime Minister as Chairperson, the Lok Sabha speaker and a Union Cabinet Minister nominated by the Prime Minister.
 3. The Chief Information Commissioner and Information Commissioners are not eligible for reappointment.
- Choose the incorrect code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above
37. 'Derecho', recently seen in the news can be best defined as which of the following natural phenomenon: (Level – Difficult)
- A. Storm
 - B. Flashfloods
 - C. Landslides
 - D. Tsunamis
38. The drug sabizabulin, that is showing positive results in severe Covid 19 patients, was initially created to fight against which of the following diseases? (Level – Difficult)
- A. Malaria
 - B. AIDS
 - C. Cancer
 - D. Tuberculosis
39. Which of the following fruits was recently renamed to 'Kamlam' by the Gujarat government? (Level – Easy)
- A. Rambutan
 - B. Dragon fruit
 - C. Mangosteen
 - D. Durian

40. "Leaf litter decomposes faster than in any other biome and as a result the soil surface is often almost bare. Apart from trees, the vegetation is largely composed of plant forms that reach up into the canopy vicariously, by climbing the trees or growing as epiphytes, rooted on the upper branches of trees." This is the most likely description of (Level – Medium) PYQ (2021)
- A. Coniferous forest
 - B. Dry deciduous forest
 - C. Mangrove forest
 - D. Tropical rain forest
41. Which of the following statement/s is/are correct with respect to Monuments of national Importance? (Level – Difficult)
1. A monument of national importance, is designated by the National Monuments Authority.
 2. The highest number of monuments of national importance are in Karnataka, followed by the state of Tamil Nadu.
- Options:
- A. 1 only
 - B. 2 only
 - C. Both 1 and 2
 - D. Neither 1 nor 2
42. Consider the following statements with respect to the Kisan Credit Card Scheme. (Level – Medium)
1. This scheme was introduced in the year 2016.
 2. The credit provided under the scheme are not only provided to meet the credit requirements for cultivation of crops but can also cover the consumption expenditure of farmer households.
 3. Tenant Farmers, Oral Lessees & Share Croppers are also eligible under this scheme.
- Which of the following statements are correct?
- Options:
- A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3

43. Consider the following pairs of Vector Borne Disease and their respective vector. (Level – Difficult)

Disease	Vector
1. Lymphatic filariasis	Mosquito
2. Japanese encephalitis	Tick
3. Kala Azar	Sand fly

Which of the following pairs are correctly matched?

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

44. Which of the following are features of the Hydrocarbon Exploration and Licensing Policy? (Level – Medium)

- 1. Separate licenses for different hydrocarbons
- 2. Production sharing contract
- 3. Graded system of royalty rates
- 4. Open acreage licensing
- 5. Marketing and pricing freedom

Options:

- A. 1, 4 and 5
- B. 1, 3 and 4
- C. 3, 4 and 5
- D. 2, 3 and 5

45. On 21st June, the sun (Level – Easy) PYQ (2019)

- A. Does not set below the horizon at the Arctic circle
- B. Does not set below the horizon at Antarctic circle
- C. Shines vertically overhead at noon on the equator
- D. Shines vertically overhead at the Tropic of Capricorn

46. Which of the following statements about Red Panda is/are correct? (Level – Medium)

- 1. The red panda has been listed as endangered on the IUCN Red List
- 2. It is the state animal of Sikkim
- 3. Red panda is a Schedule – I animal, according to wildlife (Protection) act, 1972.

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 3 only
- D. 1, 2 and 3

47. Consider the following Pairs: (Level – Medium)

National/Zoological Park	State
1. Singalila National Park	West Bengal
2. Padmaja Naidu park	Andhra Pradesh
3. Neora Valley National Park	Uttarakhand

Which of the above pairs is/are correctly matched?

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

48. With reference to Sannati, which of the following statements is/are correct? (Level – Difficult)

- 1. It is located on the banks of the Bhima River in Kalaburagi district of Karnataka.
- 2. The only available sculpture of Emperor Ashoka, in a limestone relief along with his consort, was found here.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

49. Which amongst the following is the best description of 'Operation Blue Star'? (Level – Easy)

- A. The operation was launched by the Indian Army to recapture the Indian territories from Pakistani intruders in the Kargil-Drass sector
- B. It was a military operation to eliminate armed militants who were holed up in the Golden Temple.
- C. It was an anti-insurgency operation launched by the Indian Peace Keeping Force (IPKF) against the Liberation Tigers of Tamil Eelam (LTTE).
- D. An operation to seize control of the Siachen Glacier in Kashmir.

50. Consider the following statements: (Level – Difficult)

1. It is one of the successor states of Yugoslavia.
2. It is a landlocked country.
3. It is not part of European Union.

The above statements best describe:

- A. Bulgaria
- B. Kosovo
- C. North Macedonia
- D. Serbia

51. Which amongst the following is the best description of Bishnoi Movement? (Level – Medium)

- A. Protests against construction of large dams in Uttarakhand
- B. A social movement aimed at the protection of Silent Valley, an evergreen tropical forest
- C. A movement in Rajasthan to protect Khejri trees and other wildlife such as antelope, deer, and wildfowl.
- D. An awareness campaign to show the necessity for the protection of migratory birds in Odisha

52. Consider the following statements with respect to Vellore Mutiny: (Level – Difficult)

1. The Vellore Mutiny predated the Indian Revolt of 1857 by about a decade.
2. It was the first instance of a large-scale and violent mutiny by Indian sepoys against the East India Company
3. One of the major cause was the English disregard to the religious sensitivities of the Hindu and Muslim Indian sepoys

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

53. Consider the following Pairs: (Level – Medium)

Helicopter	Country
1. AH-64E Apache attack helicopter	USA
2. Pole Star	UK
3. CH-47 Chinook Helicopters	France
4. MI-35 helicopters	Russia

Which of the above is/are not correctly matched?

- A. 3 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. 2 and 4 only

54. With respect to National Clean Air Programme (NCAP), which of the following statements is/are correct? (Level – Medium)

1. 2015 is the base year for the National Clean Air Programme.
2. The programme is a pollution control initiative with a major goal of reducing the concentration of coarse and fine particulate matter in the atmosphere by at least 20% by theyear 2030.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

55. Consider the following communication technologies: PYQ (2022)

1. Closed-circuit Television
2. Radio Frequency Identification
3. Wireless Local Area Network

Which of the above are considered Short-Range devices/technologies ?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

56. Consider the following statements: (Level – Medium)

1. Although India was one of the first countries to extend recognition to Israel in 1950, Jawaharlal Nehru held back from establishing full diplomatic relations with the Jewish state.
2. Although the Narasimha Rao government established full diplomatic relations with Israel, he did not travel to Israel, nor did he receive an Israeli prime minister.
3. Prime Minister Narendra Modi became the first Indian PM to visit Palestine in 2018.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

57. Consider the following statements with regards to the National Emblem of India: (Level – Easy)

1. The words Satyameva Jayate (meaning ‘truth alone triumphs’) from Mundaka Upanishad are inscribed below the abacus in the Devanagari script.
2. The use of the state emblem of India, as the official seal of the Government of India, is regulated by the state of India (Prohibition of Improper Use) Act, 2005.
3. The emblem is an adaptation of the Lion Capital of Ashoka, an ancient sculpture dating back to 280 CE during the reign of the Maurya Empire.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

58. Consider the following statements with regards to the forests in India: (Level – Medium)

1. The Indian Forest Act of 1927 explains the procedure to be followed for declaring an area as Reserved Forest, Protected Forest or a Village Forest.
2. In reserved forests, local people are prohibited, unless specifically allowed by a Forest Officer in the course of the settlement.
3. The Forest Settlement Office is appointed, by the Central government, to inquire into and determine the existence, nature and extent of any rights alleged to exist in favour of any person in or over any land comprising a Reserved forest.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

59. The Nord Stream gas pipeline transmits gas from Russia to Germany through (Level – Easy)

- A. North Sea
- B. Baltic Sea
- C. Sea of Azov
- D. Black Sea

60. Consider the following statements: (Level – Medium)

1. The Governor of the Reserve Bank of India (RBI) is appointed by the Central Government.
2. Certain provisions in the Constitution of India give the Central Government the right to issue directions to the RBI in public interest.
3. The Governor of the RBI draws his power from the RBI Act.

Which of the above statements are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

61. Consider the following statements:

1. In the last decade, India’s exports to EU countries have grown at a faster pace than the country’s overall exports.
2. Under the India-UAE Comprehensive Economic Partnership Agreement, 40% value addition or substantial processing of up to 40% in the exporting country is required to qualify for lower tariffs.
3. US-Mexico-Canada Agreement has a “sunset” clause in trade agreements which provides for periodic reviews and the agreement is slated to end automatically in 16 years unless the countries renegotiate it.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

62. Consider the following statements with regards to climate change:

1. The next round of NDCs (Nationally Determined Contributions) is due only in 2025.
2. Only Egypt & New Zealand have responded to a call that countries should revisit their NDCs by the end of 2022, to strengthen them.
3. The member countries of the Like Minded Group include Belarus, Bhutan, China and India.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

63. Consider the following statements with regards to the bail rule in India:

1. The CrPC does not define the word bail but only categorises offences under the Indian Penal Code as 'bailable' and 'non-bailable'.
2. Non-bailable offences are cognisable, which enables the police officer to arrest without a warrant.
3. The CrPC empowers magistrates to grant bail for bailable offences as a matter of right.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

64. NASA has described the Webb's First Deep Field image as the "deepest and sharpest _____ image of the distant universe to date"; it shows a galaxy cluster called SMACS0723 — and more.

Fill in the blank.

- A. Infrared
- B. Ultraviolet
- C. X-ray
- D. Virtual

65. With reference to the Indus river system of the following four rivers, three of them pour into one of them, which joins the Indus direct. Among the following, which one is such river that joins the Indus direct? (UPSC 2021)

- A. Chenab
- B. Jhelum
- C. Ravi
- D. Sutlej

66. Consider the following statements: (Level – Medium)

1. The Indian National Congress faced its first split post-independence in 1969.
2. The "old" Congress retained the party symbol of a pair of bullocks carrying a yoke; the breakaway faction was given the symbol of a cow with a calf.
3. In case of a split in a political party, the Election Commission of India determines the allocation of the party symbol.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only

- C. 1 & 3 only
- D. All of the above

67. Consider the following statements with regards to Article 21: (Level – Medium)

1. In Maneka Gandhi v. Union of India (1978), the Supreme Court said that 'personal liberty' in Article 21 covers "a variety of rights which go to constitute the personal liberty of man".
2. Earlier, In Satwant Singh Sawhney v. D. Ramarathnam Assistant Passport Officer (1967), the right to travel abroad was read as an intrinsic part of Article 21.

Choose the correct code:

- A. 1 only
- B. 2 only
- C. Both 1 & 2
- D. None of the above

68. Consider the following statements with regards to India's climate change commitments: (Level – Easy)

1. In 2015, India committed to ensuring that 40% of its energy would be from renewable sources by 2022 as part of its Nationally Determined Contributions (NDC).
2. India has already installed 162 GW of renewable energy capacity, which is 41% of the 402GW of electricity installed.
3. PM Modi raised the target at the UN COP26 by committing to install 500 GW of renewable energy by 2030.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

69. Which of the following best defines 'windfall tax'? (Level – Easy)

- A. A higher tax rate on sudden big profits levied on a particular company or industry.
- B. A lower tax rate to boost economic recovery.
- C. A short term tax to reduce the government's fiscal deficit.
- D. A retrospective tax decision.

70. Consider the following animals: (Level – Difficult)

1. Hedgehog
2. Marmot
3. Pangolin

To reduce the change of being captured by predators, which of the above organisms rolls up/roll up and protects/protect its/their vulnerable parts?

- A. 1 and 2
- B. 2 only
- C. 3 only
- D. 1 and 3

71. With respect to Simla Agreement, which of the following statements is/are correct? (Level – Medium)

1. It was an agreement between Indira Gandhi and Zia-ul-Haq.
2. It was signed in the year 1972.
3. The agreement was signed in Ellerslie House at Shimla, Himachal Pradesh.

Options:

- A. 1 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2 and 3

72. I2U2 recently seen in news is associated with (Level – Easy)

- A. North Atlantic Treaty Organization (NATO)
- B. Organisation for Economic Co-operation and Development (OECD)
- C. Shanghai Cooperation Organization (SCO)
- D. West Asian Quad

73. Which of the following statements with respect to Fundamental Duties (FD) is/are correct? (Level – Difficult)

1. The FD extends to all individuals residing in India.
2. They are enforceable by law.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

74. Consider the following statements: (Level – Difficult)

1. The design of the Indian tricolour is largely attributed to Pingali Venkayya.
2. The ratio of the width to the length of the flag is 3:2.
3. The right to fly the National Flag by Indian citizens is a fundamental right.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

75. Consider the following statements: (Level – Difficult) PYQ (2022)

1. In India, credit rating agencies are regulated by Reserve bank of India.
2. The rating agency popularly known as ICRA is a public limited company.
3. Brickwork Ratings is an Indian credit rating agency.

Which of the statements given above are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

76. Which of the following is the most grown kharif pulse in India? (Level – Difficult)

- A. Arhar
- B. Moong
- C. Urad
- D. Moth

77. Consider the following statements with regards to CAATSA (Countering America's Adversaries through Sanctions Act): (Level – Easy)

1. It is a US federal law enacted in 2017.
2. The Act empowers the US President to impose at least five of the 12 listed sanctions on persons engaged in a "significant transaction" with Russian defence and intelligence sectors.
3. The US Senate was given the authority in 2018 to waive CAATSA sanctions on a case-by-case basis.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

78. Consider the following statements with regards to Shanghai Cooperation Organization: (Level – Medium)

1. China, Russia and four Central Asian states – Kazakhstan, Kyrgyzstan, Uzbekistan and Turkmenistan — were the founding members of the SCO.
2. The group will soon induct Iran and Belarus as members as well.
3. Varanasi has been selected as the SCO region's first "Tourism and Cultural Capital".

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

79. As per the UN, three million children in India missed DTP dose in 2020 because of pandemic. In this context, what is DTP? (Level – Medium)

- A. diphtheria, tetanus and pertussis
- B. diphtheria, typhoid and pertussis
- C. diphtheria, tetanus and polio
- D. diphtheria, typhoid and polio

80. With reference to India, Didwana, Kuchaman, Sargol and Khatu are the names of (Level – Difficult) PYQ (2021)

- A. Glaciers
- B. Mangrove areas
- C. Ramsar sites
- D. Saline lakes

81. Which of the following can be considered advantages of millet crop cultivation over cultivation of food grains such as rice and wheat? (Level – Medium)

1. Lesser water requirement
2. Can grow in less fertile soils as well
3. Resistance to climatic stress
4. Shorter growing cycles

Options:

- A. 1, 3 and 4 only
- B. 1, 2 and 3 only
- C. 2, 3 and 4 only
- D. 1, 2, 3 and 4

82. Which of the following statement/s is/are correct? (Level – Medium)

1. If the President dies or resigns or is otherwise incapacitated and as a result, the Presidential office becomes vacant, the Vice- President will act as President for a maximum period of one year.
2. If the Vice- President is not available to discharge the duties of the President, in such a scenario the responsibilities of the Presidential office fall on the Chief Justice of India.
3. S Radhakrishnan is the only person to have served as Vice President and then later as President of India.

Options:

- A. 1 and 2 only
- B. 2 only
- C. 2 and 3 only
- D. 3 only

83. Which of the following can be considered applications of quantum computing? (Level – Easy)

1. Artificial intelligence and machine learning
2. Computational chemistry
3. Drug design and development
4. Cybersecurity and cryptography
5. Weather forecasting

Options:

- A. 1, 2, 3 and 5 only
- B. 2, 3, 4 and 5 only
- C. 1, 2, 3, 4 and 5
- D. 1, 3 and 5 only

84. Consider the following architectural features. (Level – Difficult)

1. Trabeate style
2. Use of mortar
3. Use of calligraphy
4. Pietra-dura technique
5. Arabesque method

Which of the above are features of the Indo-Islamic architecture?

- A. 1, 3 and 4 only
- B. 1, 2, 3, 4 and 5
- C. 2 and 5 only
- D. 2, 3, 4 and 5 only

85. Consider the following statements: (Level – Medium) PYQ (2019)

- 1. Asiatic Lion is naturally found in India only.
- 2. Double-humped camel is naturally found in India only.
- 3. One-horned rhinoceros is naturally found in India only.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2 and 3

86. The “State of the economy” report is released by (Medium)

- A. Ministry of Finance
- B. Financial Stability and Development Council
- C. Reserve Bank of India (A)
- D. NITI Aayog

87. Which of the following statement/s is/are correct? (Medium)

- 1. While India has had a woman President, there has been no women Vice President thus far in India.
- 2. The Vice President can be removed from office by a resolution passed by the joint sitting of the Rajya Sabha and Lok Sabha.

Options:

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

88. The ‘Sanda’ Method of cultivation is associated with which of the following crops? (Difficult)

- A. Sugarcane
- B. Rice
- C. Wheat
- D. Pulses

89. Consider the following statements with regards to the FATF:

Festival	State
1. Bonalu	Telangana
2. Losar	Nagaland
3. Kharchi	Puja Tripura
4. Gangaur	Festival Gujarat

How many of the above pairs are correctly matched?

- A. One pair only
- B. Two pairs only
- C. Three pairs only
- D. All the four pairs

90. Consider the following:

- 1. Deification of the Buddha
- 2. Treading the path of Bodhisattvas
- 3. Image worship and rituals

Which of the above is/are the features/features of Mahayana Buddhism? (Medium)

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2 and 3

91. Consider the following statements with regards to the foreign trips of civil servants and political officials in India: (Level – Difficult)

- 1. The Cabinet Secretariat and the Ministry of External Affairs should be kept informed of the proposed foreign visit, only official and not private, of Chief Ministers and Ministers of State Governments/Union Territories.
- 2. Since 2016, applications can be made for e-political clearance, on the portal epolclearance.gov.in.
- 3. For union ministers, after getting political clearance from the MEA, additional clearance is needed from the Prime Minister, whether the trip is official or personal.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

92. Consider the following statements with regards to the Indian President's elections: (Level – Medium)

1. The rule for securing 50 proposers and seconders was implemented by the ECI in 1974.
2. An elector cannot propose or second the nomination of more than one candidate.
3. The President's election is held in accordance with the system of proportional representation by means of the single transferable vote and the voting is by open ballot.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

93. Consider the following statements with regards to the Shanghai Cooperation Organization: (Level – Medium)

1. India acquired the observer status in the grouping in 2005 and was admitted as a full member in 2017.
2. The SCO also has four observer states — Afghanistan, Iran, Belarus and Mongolia — of which Iran and Belarus are now moving towards full membership.
3. The SCO Secretariat has two permanent bodies — the SCO Secretariat based in Beijing and the Executive Committee of the Regional Anti Terrorist Structure (RATS) based in Tashkent.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

94. Consider the following statements with regards to Monkeypox: (Level – Easy)

1. Monkeypox is a viral zoonosis (a virus transmitted to humans from animals) with symptoms similar to those seen in the past in smallpox patients, although it is clinically less severe.
2. Monkeypox virus infection has been detected in squirrels, Gambian poached rats, dormice, and some species of monkeys.

3. The first human case was recorded in 1970 in the Democratic Republic of the Congo (DRC) during a period of intensified effort to eliminate smallpox.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

95. The term 'West Texas Intermediate' sometimes found in news, refers to a grade of (Level – Easy) PYQ (2020)

- A. Crude oil
- B. Bullion
- C. Rare earth elements
- D. Uranium

96. Consider the following statements with regards to Indian citizenship: (Level – Easy)

1. When a person relinquishes his citizenship, every minor child of that person also loses Indian citizenship. However, when such a child attains the age of 18, he may resume Indian citizenship.
2. The Government of India may terminate the citizenship of an Indian citizen if within 5 years of registration or naturalisation, a citizen has been sentenced to 2 years of imprisonment in any country.
3. Any citizen of India of full age and capacity can make a declaration renouncing Indian citizenship but such a declaration may not be accepted during wars.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

97. Consider the following statements with regards to the Indian Labour force: (Level – Difficult)

1. More females work part-time than males across all age groups in both rural and urban areas.
2. The employment rate of females at an all-India level for the age group 25-49 years living in a household with at least one child under 3 years of age is less than their employment rate in a household with no children under 3 years during 2017-18 to 2019-20.

- Choose the correct code:
- 1 only
 - 2 only
 - Both 1 & 2
 - None of the above
98. Consider the following statements with regards to India's National Emblem: (Level – Difficult)
- Four Asiatic lions are part of the national emblem with three lions being visible to the naked eye and the fourth one always hidden from general view.
 - Chinese traveller Fa-Hien has left a detailed account of Asoka's lion pillar in his writings.
 - Five students of renowned artist Nandalal Bose created the emblem. Among them were Jagdish Mittal, Kripal Singh Shekhawat, Gauri Bhanja and Dinanath Bhargava.
- Choose the correct code:
- 1 & 2 only
 - 2 & 3 only
 - 1 & 3 only
 - All of the above
99. Consider the following statements with regards to ancient Indian texts: (Level – Difficult)
- The yajana rituals involved the construction of altars (vedi) and fireplaces (agni) in a variety of shapes such as isosceles triangles, symmetric trapezia, and rectangles.
 - The sulbasutras describe steps towards the construction of these figures with prescribed sizes.
 - Sulbasutras (the oldest around 800 BC) have statements of Pythagoras's theorem, examples of Pythagorean triples, and their use in construction.
- Choose the correct code:
- 1 & 2 only
 - 2 & 3 only
 - 1 & 3 only
 - All of the above
100. 'Rapid Financing Instrument' and 'Rapid Credit Facility' are related to the provisions of lending by which one of the following? (Level – Easy) PYQ (2022)
- Asian Development Bank
 - International Monetary Fund
 - United Nations Environment Programme Finance Initiative
 - World Bank
101. Consider the following statements: (Level - Medium)
- The Cheetah was declared extinct in India in the year 1952 and is the only wild cat to go extinct in independent India.
 - Financial and administrative support for the Cheetah reintroduction programme in India would be provided by the National Tiger Conservation Authority of India.
 - Cheetahs are mostly associated with grasslands, scrublands and open forest-type wildlife habitats.
- Which of the following statements are correct?
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
102. Consider the following statements with respect to Indian Sandalwood tree (*Santalum album*)? (Level - Difficult)
- It is a small tropical tree native to southern India and Southeast Asia.
 - It is semi-parasitic in nature and parasitizes the roots of other tree species, with a haustorium adaptation on its own roots.
- Which of the following statements is/are correct?
- 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2

103. Which of the following statements is/are correct with respect to XPoSat? (Level - Medium)

1. It is a planned space observatory which would study the polarization of cosmic x-rays.
2. When launched, it would be India's first astronomical observatory in space.

Options:

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

104. Consider the following statements with respect to domestic steel production in India. (Level - Difficult)

1. The public sector led by the Steel Authority of India accounts for larger steel production as compared to the private sector in India.
2. Karnataka accounts for the largest steel production among states in India.
3. The share of domestic production in the consumption of finished steel has been increasing in India over the last three years.

Which of the following statements is/are correct?

- A. 1 and 2 only
- B. 3 only
- C. 2 only
- D. 1 and 3 only

105. Consider the following statements about the Charter Act of 1813: (Level - Medium) PYQ (2019)

1. It ended the trade monopoly of the East India Company in India except for trade in tea and trade with China.
2. It asserted the sovereignty of the British Crown over the Indian territories held by the Company.
3. The revenues of India were now controlled by the British Parliament.

Which of the above statements given above are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

106. Consider the following statements with respect to Kalbelia: (Level - Medium)

1. The Kalbelia are a snake charming tribe in Rajasthan.
2. Kalbelia dance and songs are now on UNESCO's representative list of the Intangible Cultural Heritage.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

107. With respect to Kathak, which of the following statements is/are correct? (Level - Difficult)

1. Kathak is the only form of classical dance wedded to Hindustani or North Indian music.
2. It is the only classical dance of India having links with Muslim culture, it represents a unique synthesis of Hindu and Muslim genius in art.
3. The nineteenth century saw the golden age of Kathak under the patronage of Saadat Ali Khan.

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

108. Which amongst the following are examples of Tata Vadya? (Level - Medium)

1. Ektara
2. Jhanj
3. Kamaicha
4. Sarod
5. Shehnai

Options:

- A. 1, 2 and 5 only
- B. 2, 3, 4 and 5 only
- C. 1, 3 and 4 only
- D. 3, 4 and 5 only

109. With respect to Thanjavur Maratha kingdom, which of the following statements is/are Correct? (Level - Difficult)

1. Venkoji was the founder of the dynasty.
2. Serfoji II was the last Maratha ruler of Thanjavur.
3. Serfoji II authored famous works like "Kumarasambhava Champu", "Mudrarakshaschaya" and "Devendra Kuruvanji" and introduced western musical instruments like clarinet and violin in Carnatic Music.
4. Thanjavur was annexed by the British as per the provisions of the Doctrine of Lapse.

Options:

- A. 1, 2 and 3 only
- B. 2, 3 and 4 only
- C. 1, 3 and 4 only
- D. 1 and 4 only

110. In India, which one of the following Compiles information on industrial disputes, closures, retrenchments and lay-offs in factories employing workers? (Level - Medium) PYQ (2022)

- A. Central Statistics Office
- B. Department for Promotion of Industry and Internal Trade
- C. Labour Bureau
- D. National Technical Manpower Information System

111. Consider the following statements with regards to the Upper House of the Indian Parliament: (Level - Easy)

1. The Government of India Act, 1919 provided for a second federal chamber or the "Council of States".
2. The members of the Rajya Sabha are elected by the members of the state legislative assemblies based on proportional representation.
3. The Rajya Sabha exercises the ability to create new All-India Services under Article 312 by passing a resolution subject to support and voting by two-thirds of members.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

112. Consider the following statements with regards to Indian government's commitments to fight against climate change: (Level - Medium)

1. A 75-day-long awareness campaign, "Swachh Sagar, Surakshit Sagar" has been launched on July 5.
2. A mobile app, "Eco Mitram", has been launched to spread awareness about the campaign and facilitate the registration of volunteers.
3. Goal 14 of the UN Sustainable Development Goals calls for the conservation and sustainable use of the oceans, seas, and marine resources.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

113. Consider the following statements with regards to India's Antarctic Expeditions: (Level - Medium)

1. India maintains two research stations on the continent: 'Maitri' (commissioned in 1989) at Schirmacher Hills and 'Himadri' (2012) at Larsemann Hills.
2. At 14,000,000 square kilometres, Antarctica is the fifth-largest continent.
3. India had been a signatory to the Antarctica Treaty since 1983.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

114. Consider the following statements with regards to Insolvency and Bankruptcy code: (Level - Difficult)

1. It lays down clear-cut and faster insolvency proceedings to help creditors, such as banks, recover dues and prevent bad loans, a key drag on the economy.
2. Distressed Corporate Debtors (CDs) are permitted to initiate a PIRP with the approval of half of their creditors to resolve their outstanding debt under the new mechanism.
3. Unlike in the case of the Corporate Insolvency Resolution Process (CIRP), debtors remain in control of their distressed firm during the PIRP.

Choose the correct code:

- A. 1 & 2 only
B. 2 & 3 only
C. 1 & 3 only
D. All of the above
115. Consider the following statements: (Level – Difficult) PYQ (2022)
- The Constitution of India classifies the ministers into four ranks viz. Cabinet Minister, Minister of State with Independent Charge, Minister of State and Deputy Minister.
 - The total number of ministers in the Union Government, including the Prime Minister, shall not exceed 15 percent of the total number of members in the Lok Sabha.
- Which of the statements given above is/are correct?
- A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2
116. Consider the following statements with respect to Chandra Shekhar Azad. (Level-Medium)
- He actively participated in the Non-Cooperation movement launched by Mahatma Gandhi.
 - He formed the Hindustan Republican Association in 1923.
 - He was involved in the Kakori Train Robbery.
- Which of the following statement/s is/are correct?
- A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. 1, 2 and 3
117. Which of the following statement/s is/are correct with respect to fertilizer import and export by India? (Level-Medium)
- With respect to Muriate of Potash (MoP) fertilizer, India is completely dependent on imports.
 - With respect to Urea fertilizer, India enjoys self-sufficiency and is able to meet all demand through domestic production.
- Options:
- A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2
118. Consider the following statements with respect to Anglo-Mysore wars of 18th century. (Level-Difficult)
- The First Anglo-Mysore war was fought over the control of Northern Carnatic region and ended with the signing of the Treaty of Mangalore between the British and Hyder Ali.
 - Tipu Sultan died fighting in the Third Anglo-Mysore war.
- Which of the following statement/s is/are incorrect?
- A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2
119. Consider the following pairs of Port and bordering water body. (Level-Difficult)
- | Port | Bordering water body |
|-----------|----------------------|
| Odesa | Black sea |
| Rotterdam | North Sea |
| Hong Kong | East China Sea |
| Dakar | Indian Ocean |
- How many of the above pairs are correctly matched?
- Options:
- A. One pair only
B. Two pairs only
C. Three pairs only
D. All the four pairs
120. Consider the following statements: (Level-Medium)
- The Environment Protection Act, 1986 empowers the Government of India to state the requirement of public participation in the process of environmental protection and the procedure and manner in which it is sought
 - lay down the standards for emission or discharge of environmental pollutants from various sources
- Which of the statements given above is/are correct?
- A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2

121. Consider the following statements about Anushilan Samiti.(Level- Difficult)
1. The organization arose from a conglomeration of local youth groups in Bengal in 1902 due to the efforts of Satish Chandra Basu.
 2. The organization comprised two independent arms in East and West Bengal, Dhaka Anushilan Samiti and the Jugantar group.
 3. The Jugantar group led by Pulin Behari Das undertook the Barrah dacoity in 1908.
- Which of the following statements are correct?
- A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3
122. Which of the following statement/s is/are incorrect with respect to the Central Administrative Tribunal (CAT)? (Level- Medium)
1. The Jurisdiction of CAT extends to the all-India services, the Central civil services, civil posts under the center and civilian employees of defense services.
 2. The members of CAT are drawn from both judicial and administrative streams and are appointed by the President.
 3. Appeals against the order of the CAT can be made only in the Supreme Court and not in High Courts.
- Options:
- A. 1 only
 - B. 1 and 3 only
 - C. 3 only
 - D. 2 only
123. Consider the following statements about the Modhera Sun Temple.(Level- Difficult)
1. It was built in the 11th century during the reign of Bhima I of the Chalukya dynasty.
 2. It is built in the Maru-Gurjara Style of architecture.
- Which of the following statement/s is/are correct?
- A. 1 only
 - B. 2 only
 - C. Both 1 and 2
 - D. Neither 1 nor 2
124. Which of the following countries is the largest producer of mangoes in the world? (Level-Medium)
- A. India
 - B. China
 - C. Pakistan
 - D. Thailand
125. Consider the following pairs: (Level- Difficult)
- | | |
|------------------------|--------------------|
| Wildlife | Naturally found in |
| 1. Blue-finned Mahseer | Cauvery River |
| 2. Irrawaddy Dolphin | Chambal River |
| 3. Rusty-spotted Cat | Eastern Ghats |
- Which of the pairs given above are correctly matched?
- A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3
126. Consider the following statements with respect to Lithium: (Level-Difficult)
1. It is considered to be the lightest or the least dense metal on earth.
 2. It is highly reactive and flammable and must be stored in vacuum, inert atmosphere, or inert liquid such as purified kerosene or mineral oil.
 3. Lithium salts have proven to be useful as a mood stabilizer and antidepressant in the treatment of mental illnesses such as bipolar disorder.
- Which of the statements given above is/are correct?
- A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3
127. With respect to the Child Labour (Prohibition and Regulation) Amendment Act, 2016, which of the following statements is/are correct? (Level-Medium)
1. Children below the age of 14 years will be allowed to work in occupations except for 18 occupations and 65 processes.
 2. Children below the age of 14 years will be allowed to work in Family Businesses/Enterprises only if they are non-hazardous.
- Options:

- A. 1 only
B. 2 only
C. Both
D. None
128. Which of the following genetically modified (GM) crops has/have been approved for commercial cultivation in India? (Level- Easy)
1. Brinjal
 2. Cotton
 3. Golden rice
 4. Soybean
- Options:
- A. 1 and 3 only
B. 2 only
C. 1, 2 and 3 only
D. 3 and 4 only
129. Arrange the following islands from North to South: (Level: Difficult)
1. Smith Island
 2. Long Island
 3. Havelock Island
 4. Rutland Island
- Options:
- A. 1-2-3-4
B. 2-3-4-1
C. 3-4-1-2
D. 4-1-2-3
130. With reference to the proposals of Cripps Mission, consider the following statements: (Level-Medium)
1. The Constituent Assembly would have members nominated by the Provincial Assemblies as well as the Princely States.
 2. Any Province, which is not prepared to accept the new Constitution would have the right to sign a separate agreement with Britain regarding its future status.
- Which of the statements given above is/are correct?
- A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2
131. Which of the following is not a member of the Developing eight countries (D-8) grouping? (Level – Difficult)
- A. Sri Lanka
B. Pakistan
C. Turkey
D. Nigeria
132. Consider the following statements about the World Economic Outlook report: (Level – Medium)
1. It is published by the International Monetary Fund.
 2. It analyzes and predicts global economic developments during the near and medium term.
 3. It is usually published four times a year.
- Which of the above statements are correct?
- A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. 1, 2 and 3
133. Consider the following statements with respect to organic farming: (Level – Difficult)
1. India currently ranks first in terms of certified area of organic agriculture globally.
 2. India has the highest number of certified organic farmers in the world.
 3. The Paramparagat Krishi Vikas Yojana aimed to promote organic farming provides for technical assistance and it does not provide any kind of monetary support.
- Which of the above statements is/are correct?
- A. 1 and 2 only
B. 2 only
C. 1 and 3 only
D. 3 only
134. Consider the following statements about the International Space Station: (Level – Easy)
1. It is jointly run by the space agencies of the U.S., Russia, Europe, Japan, China and Canada.
 2. It is placed in high earth Orbit.
- Which of the above statements is/are correct?
- A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2

135. Who among the following Mughal Emperors shifted emphasis from illustrated manuscripts to album and individual portrait? (Level – Medium) PYQ (2019)

- A. Humayun
- B. Akbar
- C. Jahangir
- D. Shah Jahan

136. Consider the following statements about Central Reserve Police Force (CRPF) (Level – Medium)

1. It is India's largest central armed police force.
2. It functions under the authority of the Ministry of Home Affairs of the government of India.
3. Rapid Action Force, Commando Battalion for Resolute Action and National Security Guard are specialized units of the CRPF.

Which of the above statements are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

137. Consider the following statements with respect to Warehousing (Development and Regulation) Act of 2007 (Level – Difficult)

1. The registration of warehouses with the Warehousing Development and Regulation Authority is optional.
2. Captive warehouses such as the ones of Food Corporation of India also come under the ambit of the act.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

138. Which of the following statements is/are correct with respect to millet cultivation in India? (Level – Difficult)

1. India accounts for over 50% of global millet production.
2. India's average yield of millets is higher than the global average yield.
3. Finger millet accounts for the largest share of millets crop grown in India.

Options:

- A. 1 only
- B. 2 and 3 only
- C. 2 only
- D. 1 and 3 only

139. Which of the following statement/s is/are correct with respect to tea exports from India? (Level – Medium)

1. India is the largest exporter of tea globally.
2. Green tea accounts for the largest share of tea exports from India.
3. Russia is the largest importer of Indian tea, followed by Iran.

Options:

- A. 1 and 2 only
- B. 3 only
- C. 2 and 3 only
- D. 1 only

140. With reference to the Constitution of India, prohibitions or limitations or provisions contained in ordinary laws cannot act as prohibitions or limitations on the constitutional powers under Article 142. It could mean which one of the following? (Level – Easy) PYQ (2019)

- A. The decisions taken by the Election Commission of India while discharging its duties cannot be challenged in any court of law.
- B. The Supreme Court of India is not constrained in the exercise of its powers by laws made by the Parliament.
- C. In the event of grave financial crisis in the country, the President of India can declare Financial Emergency without the counsel from the Cabinet.
- D. State legislatures cannot make laws on certain matters without the concurrence of Union Legislature.

141. Consider the following statements: (Level – Difficult)

1. In the Lok Sabha and Rajya Sabha, the Speaker and Chairman have the power to suspend a member either through a motion or by themselves.
2. Article 124 of the Constitution says parliamentary proceedings cannot be questioned before a court.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

142. Which of the following are the initiatives for the welfare and upliftment of the minority Communities? (Level – Medium)

1. Hamari Darohar
2. Nai Manzil
3. Nai Udaan
4. Naya Savera
5. USTAAD

Options:

- A. 1, 2 and 3 only
- B. 2, 3, 4 and 5 only
- C. 1, 4 and 5 only
- D. 1, 2, 3, 4 and 5

143. With respect to Samudrayaan Mission, which of the following statements is/are incorrect? (Level – Difficult)

1. It is India's first manned ocean mission.
2. The mission has the goal of sending men deep into the ocean in a submersible vehicle for deep-ocean exploration and rare mineral mining.
3. It will carry 3 human beings to a water depth of 6000 meters in the ocean.

Options:

- A. 1 and 2 only
- B. 3 only
- C. 1, 2 and 3
- D. None

144. Consider the following statements (Level – Difficult)

1. This region is surrounded by Gulf of Aqaba.
2. Strait of Tiran connects two water bodies.
3. Its coastlines touch Mediterranean Sea and Red Sea.

The country in question is:

- A. Jordan
- B. Egypt
- C. Syria
- D. Israel

145. Which one of the following lakes of West Africa has become dry and turned into a desert? (Level – Medium) PYQ (2022)

- A. Lake Victoria
- B. Lake Faguibine
- C. Lake Oguta
- D. Lake Volta

146. Consider the following statements with regards to the Indian Economy's core sector: (Level – Easy)

1. The eight core sectors are coal, crude oil, natural gas, refinery products, fertilizer, steel, cement and electricity.
2. The eight core sector industries in decreasing order of their weightage: Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers.
3. At present, the base year of IIP is 2014-15.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

147. Consider the following statements with regards to India's first bullion exchange — the India International Bullion Exchange (IIBX): (Level – Difficult)

1. To become qualified jewellers in order to import gold through the IIBX, they would require a minimum net worth of Rs 25 crore and 90 per cent of the average annual turnover in the last three financial years through deals in goods categorized as precious metals.
2. Apart from qualified jewellers, non-resident Indians and institutions will also be able to participate in the exchange after registering with the IFSCA (International Financial Services Centers Authority).
3. For becoming a trading member at IIBX, a qualified jeweller may establish a branch or a subsidiary in IFSC (International Financial Services Centre) and apply to the IFSCA.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

148. Consider the following statements with regards to Commonwealth Games: (Level – Medium)

1. Women's International Cricket has been made a part of the 2022 Commonwealth games.
2. The motto for the 2022 Commonwealth games is "Games for Everyone".
3. India's best-ever performance at the Commonwealth games came in the 2010 edition hosted by India.

Choose the correct code:

- A. 1 & 2 only
 B. 2 & 3 only
 C. 1 & 3 only
 D. All of the above
149. Consider the following statements with regards to National Tiger Conservation Authority: (Level – Easy)
1. National Tiger Conservation Authority (NTCA) is a statutory body under the Ministry of Environment, Forests and Climate Change.
 2. It was established in 2005 following the recommendations of the Tiger Task Force.
 3. The National Tiger Conservation Authority is set up under the chairmanship of the Prime Minister.
- Choose the correct code:
- A. 1 & 2 only
 B. 2 & 3 only
 C. 1 & 3 only
 D. All of the above
150. Which of the following is not included in the assets of a commercial bank in India? (Level – Easy)
- A. Advances
 B. Deposits
 C. Investments
 D. Money at call and short notice
151. Consider the following statements with respect to Shaheed Udham Singh. (Level - Medium)
1. He was part of the Ghadar Party.
 2. He assassinated Michael O’Dwyer, to avenge the killing of Lala Lajpat Rai.
- Which of the following statement/s is/are correct?
- A. 1 only
 B. 2 only
 C. Both 1 and 2
 D. Neither 1 nor 2
152. Consider the following pairs of elephant reserves and associated state. (Level- Medium)
- | Elephant reserve | State |
|------------------|----------------|
| Sonitpur | Assam |
| Intanki | Nagaland |
| Anamudi | Tamil Nadu |
| Srivilliputhur | Andhra Pradesh |
- How many of the above pairs is/are correctly matched?
- A. One pair only
 B. Two pairs only
 C. Three pairs only
 D. All the four pairs
153. Which of the following statement/s is/are correct with respect to Santhal rebellion (1855-56)? (Medium)
1. The revolt was spearheaded by the murmur brothers- Sidhu and Kanhu.
 2. The rebellion is also known as Ulgulan.
 3. The British created the Damin-i-koh district in the Santhal inhabited areas after the rebellion to placate the Santhals.
- Options:
- A. 1 only
 B. 2 and 3 only
 C. 1 and 3 only
 D. 2 only
154. Consider the following statements with respect to floating solar plants.
1. Ramagundam floating Solar plant in Telangana is the largest such operating plant in India and also the largest in the world.
 2. The water body underneath the solar modules helps in maintaining their ambient temperature, thereby improving their efficiency and generation.
- Which of the following statement/s is/are correct?(Medium)
- A. 1 only
 B. 2 only
 C. Both 1 and 2
 D. Neither 1 nor 2

155. The Service Area Approach was implemented under the purview of (Level- Easy)
- A. Integrated Rural Development Programme
 - B. Lead Bank Scheme
 - C. Mahatma Gandhi National Rural Employment Guarantee Scheme
 - D. National Skill Development Scheme

Prelims Test Series

18 tests covering the entire syllabus of
General Studies Paper-I and CSAT Paper



General Studies Paper I -
10 Module Wise test



General Studies Paper II -
2 Module Wise test



Simulated Full Length
Test - 6 (General Studies
paper I and II)



Special emphasis on
current affairs



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the paper and all India
ranking after each test



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tests – Live and
recorded videos will be
provided



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and offline mode

ATTENDANCE NO.:

To be filled by the Supervisor

केन्द्र CENTRE	विषय SUBJECT	विषय कोड S. CODE	अनुक्रमांक ROLL NUMBER
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पुस्तिका सिरीज BOOKLET SERIES	विषय SUBJECT	अनुक्रमांक ROLL NUMBER
A	00	00000000
B	11	11111111
C	22	22222222
D	33	33333333
	44	44444444
	55	55555555
	66	66666666
	77	77777777
	88	88888888
	99	99999999

<p>निर्देश : DIRECTIONS:</p> <p>केवल काला बाल प्वाइंट पेन इस्तेमाल करें </p> <p>USE BLACK BALL POINT PEN ONLY</p> <p>उदाहरण EXAMPLE a b c d</p> <p>निरीक्षक पुस्तिका सिरीज काला बाल प्वाइंट पेन से कूटबद्ध करें</p> <p>BOOKLET SERIES to be coded by Invigilator with Black Ball Point Pen a b c d</p> <p>Invigilator in Black Ball Point Pen</p> <p>Initials of</p>	1 a b c d	2 a b c d	3 a b c d	4 a b c d	5 a b c d	6 a b c d	7 a b c d	8 a b c d	9 a b c d	10 a b c d	11 a b c d	12 a b c d	13 a b c d	14 a b c d	15 a b c d	16 a b c d	17 a b c d	18 a b c d	19 a b c d	20 a b c d	21 a b c d	22 a b c d	23 a b c d	24 a b c d	25 a b c d	26 a b c d	27 a b c d	28 a b c d	29 a b c d	30 a b c d	31 a b c d	32 a b c d	33 a b c d	34 a b c d	35 a b c d	36 a b c d	37 a b c d	38 a b c d	39 a b c d	40 a b c d	41 a b c d	42 a b c d	43 a b c d	44 a b c d	45 a b c d	46 a b c d	47 a b c d	48 a b c d	49 a b c d	50 a b c d	51 a b c d	52 a b c d	53 a b c d	54 a b c d	55 a b c d	56 a b c d	57 a b c d	58 a b c d	59 a b c d	60 a b c d	61 a b c d	62 a b c d	63 a b c d
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कृपय इस जगह पर कोई निशान न लगायें
PLEASE DO NOT MAKE ANY MARKS IN THIS AREA

ANSWER KEYS

1	A
2	D
3	A
4	C
5	C
6	C
7	D
8	D
9	D
10	B
11	A
12	D
13	B
14	C
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16	B
17	A
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36	A
37	A
38	C
39	B
40	D

[CLICK HERE TO READ EXPLANATION](#)

41	D
42	B
43	C
44	C
45	A
46	D
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49	B
50	C
51	C
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76	A
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78	B
79	A
80	D

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81	D
82	B
83	C
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85	A
86	C
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90	D
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92	A
93	D
94	D
95	A
96	D
97	C
98	C
99	D
100	B

101	D
102	C
103	A
104	B
105	A
106	C
107	A
108	C
109	C
110	C
111	D
112	D
113	B
114	C
115	B
116	C
117	A
118	C
119	B
120	B

[CLICK HERE TO READ EXPLANATION](#)

121	A
122	C
123	C
124	A
125	C
126	D
127	B
128	B
129	A
130	B
131	A
132	A
133	B
134	D
135	C
136	A
137	A
138	C
139	B
140	B

141	D
142	D
143	D
144	B
145	B
146	A
147	D
148	D
149	A
150	B
151	A
152	B
153	A
154	B
155	B

[CLICK HERE TO READ EXPLANATION](#)

MAINS PRACTICE QUESTIONS

GS Paper 1

Social Issues

1. India while taking all measures to reap the current demographic dividend should also prepare itself for a future diminishing of this demographic dividend. Comment (250 words; 15 marks)
2. Unless there is political inclusion of the disabled, the goal of inclusiveness and empowerment will remain elusive. In the light of the statement, examine the draft disability policy. (10 marks, 250 Words)
3. Write a note on World Population Prospects and discuss the impact of India's Population Growth on Economic Development. (10 Marks, 150 Words)

GS Paper 2

Polity and Governance

1. Discuss the controversies surrounding film censorship in India. (150 words, 10 marks)
2. GST Council has the potential to repair the grudges between the Centre and the states in India. Comment. (250 words; 15 marks)
3. Explain with relevant examples the meaning of Kangaroo courts. (10 Marks, 150 Words)
4. Section 69A of the IT Act, 2000, which allows the Centre to block public access to an intermediary requires reforms. Do you agree? Substantiate. (15 Marks, 250 Words)
5. Evaluate the role and functions of the Central Consumer Protection Authority. (250 words; 15 marks)
6. 'Justice delayed is justice denied'. This maxim has become an unfortunate reality in India due to massive pendency of cases at all levels of the judiciary. Critically examine (250 words; 15 marks)
7. Evaluate the conflict between the new IT Rules and right to free speech, with relevant examples. (250 words; 15 marks)
8. Campaigns through social media are adversely impacting matters relating to law and Constitution. Elaborate. (250 words; 15 marks)
9. Discuss the possible reasons for reduction in the fish catches in the Indian coasts and suggest corrective measures. (250 words; 15 marks)
10. What are the Supreme Court's directives on grant of bail? Why does it recommend a separate Bail Act? (10 Marks, 150 Words)
11. A strong and constructive opposition is necessary for the functioning of a government in a democracy. Discuss. (10 Marks, 150 Words)
12. Lack of transparency and accountability in the inner functioning of the political parties in India have serious consequences for the steady functioning of parliamentary democracy. Discuss. (15 Marks, 250 Words)
13. The gaps in an intrusive surveillance framework are causing severe harm to India's democratic ideals compelling a comprehensive surveillance reform. Discuss. (15 Marks, 250 Words)
14. What is Jammu and Kashmir's Public Safety Act? Discuss the constitutional safeguards against preventive detention. (15 Marks, 250 words)
15. Examine the executive and legislative powers and functions of the President of India. (250 words, 15 marks)

16. The promise of irrational freebies to entice voters during elections is a serious concern. Examine, in the light of recent observations by the Supreme Court on this issue. (250 words; 15 marks)
17. As attacks on RTI applicants continue unabated, there is a need for comprehensive, not ad hoc reforms. Examine. (15 Marks, 250 Words)
18. India needs a more honest discussion on the risks and benefits of alcohol prohibition. Analyse. (15 Marks, 250 Words)

International Relations

1. Examine the progress of China's Belt and Road Initiative in South Asia. How does it impact India's strategic interests in the region? (250 words; 15 marks)
2. The present global scenario presents a golden opportunity for India to bring the two polarized camps together. Elaborate. (250 words; 15 marks)
3. G20 grouping finds itself in a difficult situation amid growing disunity. Examine. (10 Marks, 150 Words)
4. A stronger partnership between India and South Korea can have a long-term positive impact for both countries and the Indo-Pacific region. Analyze. (250 words; 15 marks)
5. To deepen trade and investment linkages with Sri Lanka, India can explore the option of increasing the humanitarian aid. Examine. (10 Marks, 150 Words)
6. Discuss the significance of the UN-backed grain export deal signed by Ukraine, Russia. (10 Marks, 150 Words)
7. The Arab Spring which offered hope of democratic change across the Middle East and North Africa has failed. Substantiate. (15 Marks, 250 Words)

Social Justice

1. Despite the landmark judgments of the Supreme Court in the NALSA case and Navtej Singh Johar case, the LGBTQIA++ community continue to face several challenges in India. Critically examine. (250 words; 15 marks)

Health

1. To tackle the antimicrobial resistance (AMR) crisis, India needs robust investment in the research and development of new antibiotics. Examine. (10 Marks, 150 Words)

GS Paper 3

Economy

1. Why is the rupee falling and how will it impact the Indian economy and people? (150 words, 10 marks)
2. What was the need to introduce the Goods and Services Tax regime in India to replace most of the indirect taxes? Have those objectives been achieved in the last 5 years? (250 words; 15 marks)
3. Evaluate the domestic and global factors pushing the fall of Indian rupee. How does this affect the Indian economy? (250 words; 15 marks)
4. What factors have played a key role in boosting India's defense exports over the past few years? Also enlist the stumbling blocks that still remain. (250 words; 15 marks)
5. Discuss the tools that are used to implement the policy of protectionism and critically analyse if this policy will hinder India's Economic Growth. (15 Marks, 250 Words)
6. The four-day work week is a welcome step towards gender equality and women's career progression. Comment. (10 Marks, 150 Words)

7. What factors have played a key role in boosting India's defense exports over the past few years? Also enlist the stumbling blocks that still remain. (250 words; 15 marks)
8. What are the measures taken by Reserve Bank of India (RBI) to slow down rupee's depreciation? (10 Marks, 150 Words)
9. Explain why pre-packaged and labelled food items been brought under the tax net now. (10 Marks, 150 words)
10. What do you understand by fiberisation? Discuss the challenges associated with it in the light of 5G technology. (10 marks, 150 Words)
11. Prospects of sustaining investment recovery are likely to get harder with a depreciating rupee and rising inflation. Analyse. (10 marks, 150 Words)
12. The sole dependency on GDP number as a metric for measuring economic growth and development is not recommended given that GDP may not be a measure of societal well-being. Critically discuss. (250 words; 15 marks)
13. The Indian rupee has been depreciating under the pressure of global and domestic factors. Evaluate the reasons and how it affects India's exports and imports. (250 words, 15 marks)
14. Is rescuing loss-making BSNL a good use of public funds? Critically examine. (10 marks, 150 Words)

Environment and Ecology

1. Human activities are important factors that trigger landslides. Discuss measures to reduce the chance of landslides. (150 words, 10 marks)
2. A ban on the use of single-use plastics that was notified by the Union Environment Ministry in 2021 came into effect this year. Analyse the provisions and how can it be enforced effectively? (250 words, 15 marks)
3. The Environment Protection Act, 1986 is a landmark legislation for tackling environmental pollution in India. In this context, critically evaluate the proposed amendments to the Act. (250 words; 15 marks)
4. Development at the cost of environment is a bad deal. Elaborate in the context of emergence of various Urban Heat Islands in India. (250 words; 15 marks)
5. Will new penalties on environment violations soften the blow for air, water and land polluters? Critically Comment. (10 Marks, 150 Words)
6. What do you understand by Eco-Sensitive Zones (ESZ)? Why are there protests in Kerala against the recent Supreme Court's order to establish ESZ around protected areas? (10 Marks, 150 Words)
7. Discuss the measures that India can take to combat climate change. (15 Marks, 250 Words)
8. Development at the cost of environment is a bad deal. Elaborate in the context of emergence of various Urban Heat Islands in India. (250 words; 15 marks)
9. Write a note on E-waste (Management) Rules, 2016 and examine how the rules proposed by the Centre threatens the livelihood of thousands of people. (10 Marks, 250 Words)

Science and Technology

1. Evergreening strategies are regularly employed by giant branded pharmaceutical firms as a tactic to bypass existing patent laws and limit generic competition in the marketplace. In the light of the statement, discuss the key provisions that prevent Ever Greening of Patents in India. (10 Marks, 150 Words)
2. Use of technology by law enforcement agencies can act as a force multiplier but can never be an alternative to compassionate policing based on trust between the police and citizens. Substantiate. (250 words; 15 marks)
3. Space debris poses a serious threat to space assets. Examine the risks and possible solutions. (250 words, 15 marks)

4. What do you understand by dark matter? What is the significance of the LUX--ZEPLIN (LZ) experiment? Examine in detail. (250 words; 15 marks)
5. How does a strong space sector contribute to overall development? Why are private players being encouraged to invest in India's space sector? Analyse. (250 words, 15 marks)

Defence and Security

1. Explain India's No First Use nuclear weapons doctrine. What are the possible implications of any change in the doctrine? (250 words; 15 marks)
2. Wrongful Incarceration of tribals in the fight against Maoists is a self-defeating ploy. Examine. (10 Marks, 150 Words)
3. Money laundering is not just a threat to the economic security of the nation but also to its national security. Examine these threats and how India is trying to counter the threat. (250 words, 15 marks)
4. The Supreme Court verdict on the Prevention of Money Laundering Act fails to protect personal liberty from stringent provisions. Do you agree? Justify. (15 Marks, 250 Words)

Mains Test Series

15 Tests covering 4 General Studies Papers and Essay



15 Tests covering 4 GS papers and Essay



8 Modular tests (2 for 4 GS papers)



3 essay tests



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