07 Feb 2023: UPSC Exam Comprehensive News Analysis
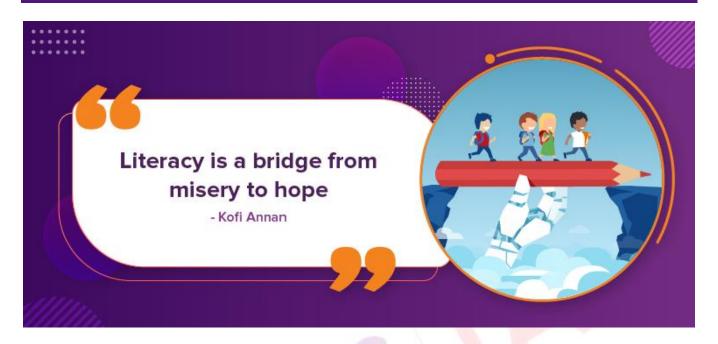

Literacy is a bridge from misery to hope

- Kofi Annan

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A. GS 1 Related

Nothing here for today!!!

B. GS 2 Related

Nothing here for today!!!

C. GS 3 Related

Category: SCIENCE AND TECHNOLOGY

1. Voice deepfakes: how they are generated, used, misused and differentiated

Syllabus: Science and Technology - developments and the associated issues

Prelims: About Deepfakes and Voice Deepfakes

Mains: Voice deepfakes - associated concerns and possible solutions

Context

Recently, users of social media platform named "4chan" used the features of "speech synthesis" and "voice cloning" and replicated the voice deepfakes of celebrities to make racist, abusive, and violent comments.

Deepfakes

- Deepfakes refer to digital content such as video, audio and images which are edited, altered and manipulated using **Artificial Intelligence** (AI) technology.
- Deepfakes are artificial images and audio that are often put together using machine-learning algorithms and are used to spread misinformation and replicate a person's appearance, voice, etc.
- The main machine learning methods used to create deepfakes are based on deep learning and involve training generative neural network architectures, such as autoencoders or generative adversarial networks (GANs).

Read more about - Deepfakes

Voice deepfakes

- Audio can also be deepfaked to create "voice skins" or "voice clones" of public figures or celebrities.
- A voice deepfake refers to mimicking a real person's voice by accurately replicating the tone, accents and other unique features of that person.
- Voice deepfake is created using AI, advanced computers with high-end graphics cards and robust cloud computing technologies.
- Other than the specialised applications and softwares, training data are to be fed to AI models in order to create deepfakes.
  - This training data includes original voice recordings of the targeted individual so that the AI can use the training data to render an authentic-sounding voice.
- **Well-known tools/software used for voice cloning**: OpenAI's Vall-e, My Own Voice, Resemble, Descript, ReSpeecher, and iSpeech.

Concerns associated with voice deepfakes

Image Source: www.fortinet.com

- There have been instances where voice deepfakes were used to defraud users and in various other illegal activities such as phone scams and posting fake videos on social media.

- o In the UAE, a bank manager was duped $35 million by a person who had cloned a company director's voice.
- Critics have also flagged the potential risks of identity theft using deepfakes and voice deepfakes.
- Also, the use of voice deepfakes in filmmaking has given rise to ethical concerns about the use of the technology.
- Furthermore, improvements and advancements in the existing technologies are making it much easier to gather clear voice recordings of people and improving the quality of data fed to AI models. This has facilitated the creation of more accurate and believable deepfake voices which can lead to scarier situations.

Ways to detect voice deepfakes and the way forward

- Detecting voice deepfakes requires the adoption of highly advanced applications, software, and technologies that have the ability to synthesize speech patterns, background noise, and other elements.
- However, there are still no cybersecurity tools that can detect audio deepfakes in a foolproof manner.
- Researchers across the world are examining the prospects of using watermarks and blockchain technologies to detect deepfake technology.
- Existing applications such as "Deeptrace" are helping to provide protection to a certain extent.
  - o The "Deeptrace" application uses a combination of antivirus and spam filters that surveil data and flags suspicious content.
- Researchers at the University of Florida have also come up with a technique that measures acoustic and fluid dynamic differences between original voice samples and those created artificially.
- Call centres across the world are required to undertake various measures to mitigate the threat from voice deepfakes.
- There is a need to deploy multifactor authentication (MFA) and anti-fraud solutions in order to address the risks associated with deepfakes.
- Additionally, factors such as devising call metadata for ID verification, digital tone analysis, and key-press are to be used to analyse behavioural biometrics and identify fake or suspicious calls.

Also read: UPSC Exam Comprehensive News Analysis dated 29 Oct 2020: Countering deepfakes

Nut graf: Deepfake technology is posing significant threats to cybersecurity in recent times. The challenges posed by the issue require governments across the world to adopt a multi-stakeholder and multi-modal approach along with the introduction of regulations and technology interventions.

D. GS 4 Related

Nothing here for today!!!

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E. Editorials

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Category: SECURITY

1. Jammu, village defence and governance

Syllabus: GS3, Security Challenges and their management in border areas.

Mains: Village Defence Committees in border areas.

Context: Rise in terror-related strikes in Rajouri and Poonch (border district of Jammu division).

Details:

- Despite militancy-related indices not showing alarming signs, any complacency by the government can result in serious consequences in the mid and long-term peace.
- The militancy in the peaceful Jammu region is distinct from those prevalent in Kashmir because of the demographic profile that has a nearly equal proportion of Hindus and Muslims.
- It should be remembered that conflict resolution in such areas is a function of utilizing the people's involvement in decision-making and execution processes.

Background:

- Many terror-related incidents were witnessed in the region in the last few years. However, the Dangri attack on 1st January 2023 was the gravest among all.
- As per the South Asia Terrorism Portal (January 2023), there were attempts of infiltration, recoveries of war-like stores, explosions followed by gunshots at the house of a local MLA, a neutralization of hideouts, and the nabbing of suspects in Rajouri and Poonch.
- After the Dangri case, the demand for the revival of Village Defence Committees emerged.
    - VDCs (rechristened as Village Defence Guards or VDGs) instil a sense of self-protection, with the district's superintendent of police mandated to exercise command and control.
    - They are a force multiplier that holds the front against militants till the arrival of the security forces.
    - However, in several instances, VDCs have proved to be counterproductive by misusing their authority and alleged human rights violations.

Way Ahead:

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- It is suggested that state policy on VDGs should mitigate the negative perception and evolve a new command and control mechanism. Currently, the top-down approach is followed with the Superintendent of Police at the helm which requires close supervision and may not be the ideal one.
- The local government bodies should be empowered and moved beyond elections.
- The revival of the VDG would further empower the local bodies. It should be noted that Panchayats best understand the local dynamics in a conflict zone.
- Additionally, panchayats should be tasked with assisting the local police in an institutionalized manner. This would result in expanding public participation in security matters, checking the quality of VDG cadres during the selection, monitoring their activities, and consolidating control by oversight and deterrence.
- Moreover, VDG's role should remain confined to self-defence and deterrence instead of intelligence and tactical operation.
- Ultimately, the key to all challenges in Jammu and Kashmir lies in empowering the local population by strengthening democracy and making it more participatory at the grassroots level.

Also read: UPSC Exam Comprehensive News Analysis. Jan 16th, 2023

Nut Graf: The increasing number of terror-related incidents in the Jammu division has once again raised the demands for appropriate action by the state. It is suggested that entrusting local bodies to manage the Village Defence Guards would not only deter militancy but also elicit a positive vibrancy from the local population.

Category: INTERNATIONAL RELATIONS

1. Puncturing ties

Syllabus: GS-2, Bilateral ties between developed countries.

Mains: China-US relations.

Context: US military shot down a Chinese Surveillance Balloon.

Details:

- The shooting down of a Chinese surveillance balloon by the U.S. military reflects the deep distrust characterizing relations between the two global superpowers.

- The balloon was detected over Montana. It sparked a diplomatic crisis and resulted in U.S. Secretary of State Antony Blinken calling off the visit to China (scheduled from 6 February 2023). Notably, it would have been the first visit by a top U.S. diplomat since 2018.
- It is suggested that the balloon controversy has punctured the process of restoring stability in relations between the US and China.
- China's arguments:
    o China said that the balloon was "civilian" (meteorology) and had drifted to the US.
    o It also termed the shooting down as an "overreaction".
- The United States stand:
    o The U.S. has termed the deployment of the surveillance balloon deep into its airspace as a grave provocation. It further suggested that such an activity would not be tolerated.

Background details and associated concerns:

- A similar incident occurred during the Trump administration. Such balloons were also spotted over Japan in 2020 and 2021, and over the Andaman Islands (India) in 2022.
- However, none of the governments shot down the balloons, presumably concluding that the balloons, in the age of intelligence powered by advanced satellites, were not very important.
- This incident might prompt India and Japan to reassess such intrusions in the future.
- China would also reconsider both the advantages and disadvantages of what appears to be a new and provocative tool for intelligence-gathering.
- The response of the Biden administration on spotting the balloon and the consequent cancellation of the top-diplomat visit to Beijing reflects that China has become a hot-button issue in U.S. politics.
- It is presumed that a crisis might arise due to rising rivalry, muscle-flexing over the Taiwan issue, and heated domestic discourse.

Nut Graf: The relations between the United States and China are at their lowest point. It has further worsened due to the spotting and consequent shooting down of the so-called Chinese Surveillance Balloon in American airspace. Reviving relations between the two countries seems difficult and would require considerable effort from both of them.

Category: POLITY AND GOVERNANCE

1. End-of-life decisions

Syllabus: GS-2, Judicial cases.

Mains: Advance medical directives and passive euthanasia.

Prelims: New modifications in advance medical directives and passive euthanasia.

Context: The constitution bench has prescribed new modifications in advance medical directives and passive euthanasia.

Details:

- In 2018, Supreme Court (SC) granted legal status to the concept of 'advance medical directives' and allowed passive euthanasia (subject to certain conditions).
- It was seen as an important decision in terms of both the patient's autonomy over end-of-life decisions and the right to a dignified death. It was later suggested by doctors that some specific conditions turned out to be "insurmountable obstacles".

Also read: RSTV - The Big Picture: Passive Euthanasia: Death with Dignity

New Modifications:

- On 3rd February 2023, a Constitution Bench modified the earlier directions to make it more workable and simple. Some of the new modifications are:
  - The advance directive need not be countersigned by a judicial magistrate and can just be attested before a notary or a gazetted officer. This implies that it is enough to have the satisfaction of the notary or officer that the document is executed voluntarily, without coercion or inducement, and with full understanding.
  - In the earlier ruling, it was directed that the executor should name a guardian or a close relative who would be authorized to facilitate consent to refuse or withdraw medical treatment, in case the patient is incapable to take a decision. This has been amended to include multiple guardians or relatives.
  - Earlier it was the responsibility of the magistrate to inform the family members about the document (if they are absent at the time of its execution). This has been modified and now the onus is on the persons themselves to provide a copy of the advance directive to the guardians or close relatives named in it and the family physician.
  - The advanced directive may also be included in digital health records.
  - As per the new guidelines, the hospital would be required to constitute a primary medical board that would certify the instructions on refusal or withdrawal of treatment.
  - A secondary board should also be formed at the hospital level. This board must include a doctor nominated by the district's chief medical officer. The task of the board is to endorse the primary board's certificate.
  - It should be noted that in the original guideline (2018) the District Collector was supposed to constitute the second medical board.
  - The new guidelines also prescribe the experience and specializations of the members of the medical boards.

- These guidelines are important and useful for the concept of "living will" and advanced medical directives.
- It is also suggested that the Parliament should formulate a comprehensive law in this regard. Such a law should also have the provision of a repository of advance directives.

For more information on new guidelines, read here: UPSC Exam Comprehensive News Analysis. Feb 4th, 2023

Nut Graf: The Constitution bench of the court has made new modifications to the guidelines of 2018 and has simplified the process. This would remove the "insurmountable obstacles" in implementing 'Advance Medical Directives' for terminally-ill patients who are beyond cure or hope.

F. Prelims Facts

Nothing here for today!!!

G. Tidbits

1. Naval LCA lands on Vikrant, first aeroplane to touch down

- The naval version of the indigenous Light Combat Aircraft (LCA) Tejas landed on INS Vikrant, which is an indigenous aircraft carrier, marking the maiden landing of a fixed-wing aircraft on INS Vikrant.
  - INS Vikrant was commissioned into the Indian Navy in September 2022.
  - The indigenous aircraft carrier uses a short take-off but arrested recovery (STOBAR) model for launching aircraft.
- The landing of LCA was also followed by the landing and take-off by a twin-engine MiG-29K fighter jet.
- Earlier in January 2020, the Defence Research and Development Organisation (DRDO) had demonstrated a successful arrested landing of the naval LCA on INS Vikramaditya.
- The recent development has been regarded as a historic milestone and a step towards achieving "Aatmanirbharta" (self-reliance) in defence.
- Further, the move also demonstrates India's capability to design, develop, construct and operate IAC with indigenous fighter aircraft.

Know more about - Light Combat Aircraft (LCA) Tejas

2. India, Canada FMs discuss Indo-Pacific cooperation, trade

- The Canadian Foreign Minister and the Indian External Affairs Minister met at the India-Canada Strategic Dialogue in Delhi which included discussions on Indo-Pacific cooperation and trade.
- The latest round of Dialogue is said to be an attempt by both countries to revive the bilateral ties which have witnessed several turbulent years.
- Canada had released its "Indo-Pacific strategy" in which it said that the Indo-Pacific region will play a significant role in its future, regarded China as an increasingly disruptive global power and recognised India as a crucial partner.
    - o The strategy document had mentioned that Canada would seek opportunities to collaborate and engage in dialogue with India in areas of common interest such as security, promotion of democracy, pluralism and human rights.
- Acknowledging the shared vision of a free, open and inclusive Indo-Pacific, India has welcomed the announcement of the Indo-Pacific Strategy by Canada.
- According to the former High Commissioner to Ottawa, 2023 could become the year of the India-Canada reset, considering the Indo-Pacific strategy convergence and trade talks which could negotiate an Early Progress Trade Agreement (EPTA) between the countries.

Learn more about - India-Canada Relations

3. India's growing energy demand offers investment opportunities: PM

- Inaugurating the India Energy Week (IEW), 2023 in Bengaluru, the Indian Prime Minister (PM) said that the demand for energy in India has grown significantly which offers opportunities for companies to invest and collaborate with energy firms.
- IEW 2023 is said to be India's first comprehensive energy event that covers the entire value chain in the year of the G20 presidency.
    - o IEW 2023 is designed to ensure energy security, affordability and accessibility.
- The PM further added that the country's energy demand has increased significantly and is expected to reach 11% of the global demand in the coming years as compared to 5% at present.
- The PM also said that the government had allocated ₹1 lakh crore for green hydrogen under the National Green Hydrogen Mission which would help India to replace the use of grey hydrogen.
- The Union Minister of Petroleum and Natural Gas also said that India's energy landscape has undergone significant transformation and the government is prepared to play a catalyst in accommodating the latest developments and adoption of low-carbon options such as biofuels, electric vehicles, and green hydrogen.

For more information on IEW 2023 refer to the following article:

H. UPSC Prelims Practice Questions

Q1. Consider the following statements regarding Tribals in India: (Level –Moderate)

1. India's tribal communities form 8.6% of the country's population according to the 2011 Census.
2. The Tribal Affairs Ministry was set up in 1999 after the bifurcation of the Ministry of Social Justice and Empowerment with the objective of providing a more focused approach to the integrated socio-economic development of the Scheduled Tribes (STs).
3. The Ministry of Tribal Affairs runs the 'Sankalp Se Siddhi' initiative, also known as 'Mission Van Dhan', in line with the Prime Minister's aim to establish a sustainable livelihood for India's tribal population.

Choose the correct code:

a. 1 & 2 only
b. 2 & 3 only
c. 1 & 3 only
d. All of the above

Answer: d

Explanation:

- **Statement 1 is correct,** As per the 2011 Census data, Tribals make up 8.6% of India's population.
- **Statement 2 is correct,** The Ministry of Tribal Affairs was set up in 1999 after the bifurcation of the Ministry of Social Justice and Empowerment with the objective of providing a more focused approach to the integrated socio-economic development of the Scheduled Tribes (STs).
- **Statement 3 is correct,** The Minister for Tribal Affairs has launched the tribal livelihoods initiative "Sankalp Se Siddhi" or "Mission Van Dhan".
  - The initiative is in line with the Prime Minister's vision to establish a sustainable livelihood for India's tribal population.

Q2. Consider the following statements with regard to INS Vikrant: (Level – Easy)

1. Vikrant is named after India's first aircraft carrier, bought from the USSR and commissioned in 1961.
2. Vikrant is the largest naval ship to be designed and built in India.

3. Naval LCA became the first aeroplane to touch down on INS Vikrant.

Choose the correct code:

a. 1 & 2 only
b. 2 & 3 only
c. 1 & 3 only
d. All of the above

Answer: b

Explanation:

- **Statement 1 is not correct,** INS Vikrant is named after the first aircraft carrier to ever grace the arsenal of the Indian Navy which was commissioned in 1961.
  - The **HMS Hercules of the British Royal Navy** was re-christened as 'Vikrant' after purchase by the Indian Navy.
- **Statement 2 is correct,** INS Vikrant is the largest ship ever designed and built in India's maritime history.
- **Statement 3 is correct,** The naval version of the indigenous Light Combat Aircraft (LCA) Tejas landed on INS Vikrant marking the maiden landing of a fixed-wing aircraft on INS Vikrant.

Q3. Consider the following statements with regard to Keoladeo National Park: (Level – Easy)

1. Keoladeo National Park is formerly known as the Bharatpur Bird Sanctuary.
2. It is a UNESCO World Heritage and a Ramsar site.
3. Gambhir and Banganga are two rivers that flow through this National Park.

Choose the correct code:

a. 1 & 2 only
b. 2 & 3 only
c. 1 & 3 only
d. All of the above

Answer: d

Explanation:

- **Statement 1 is correct,** Keoladeo National Park (in Rajasthan) which is regarded as one of the world's most important bird breeding and feeding grounds was formerly known as the Bharatpur Bird Sanctuary.

- **Statement 2 is correct,** Keoladeo National Park was listed as a World Heritage Site by UNESCO in 1985 and it was also designated a Wetland of International Importance under the Ramsar Convention in 1981.
- **Statement 3 is correct,** Keoladeo National Park is situated at the confluence of the Gambhir and Banganga rivers.

Q4. Consider the following statements with regard to earthquakes: (Level –Moderate)

1. Shallow earthquakes are generally more devastating because they carry greater energy when they emerge on the surface.
2. Magnitude is measured on a logarithmic scale, which means the seismic waves produced by a magnitude 6 earthquake have 10 times higher amplitude than the ones produced by a magnitude 5 earthquake.
3. Seismic waves travel significantly faster than the speed of light.

Choose the correct code:

a. 1 & 2 only
b. 2 & 3 only
c. 1 & 3 only
d. All of the above

Answer: a

Explanation:

- **Statement 1 is correct,** Shallow earthquakes are generally more devastating because they carry greater energy when they emerge on the surface.
- **Statement 2 is correct**, Magnitude is measured on a logarithmic scale, which means the seismic waves produced by a magnitude 6 earthquake have 10 times higher amplitude than the ones produced by a magnitude 5 earthquake.
  - Magnitude is the measure of how big the waves are, while strength refers to the energy the waves carry.
- **Statement 3 is not correct**, Seismic waves travel **significantly slower than the speed of light** i.e. between 5 and 13 km per second.

Q5. In India, the use of carbofuran, methyl parathion phorate and triazophos is viewed with apprehension. These chemicals are used as (Level – Difficult) PYQ (2019)

a. pesticides in agriculture
b. preservatives in processed foods

c. fruit-ripening agents

d. moisturising agents in cosmetics

Answer: a

Explanation:

- Carbofuran, methyl parathion, phorate and triazophos are banned **pesticides used in agriculture**.
- The Ministry of Agriculture has issued a notification inviting objections and suggestions from the stakeholders on completely banning pesticides/insecticides including Benomyl, Carbaryl, Diazinon, Fenarimol, Fenthion, Linuron, MEMC, Methyl Parthion, Sodium Cyanide, Thiometon, Tridemorph, Trifluralin, Alachlor, Dichlorvos, Phorate, Phosphamidon, Triazophos and Trichlorfon.

I. UPSC Mains Practice Questions

1. What is a 'spy balloon'? Examine the recent controversy involving US and China. (15 marks, 250 words) [GS-2, IR]

2. Critically evaluate the legal landscape in India with regard to euthanasia and the 'right to die' with dignity. (15 marks, 250 words) [GS-2, Polity]