

28 Sep 2022: UPSC Exam Comprehensive News Analysis

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A. GS 1 Related

Nothing here for today!!!

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C. GS 3 Related

Category: SCIENCE AND TECHNOLOGY

1. The NASA spacecraft-asteroid collision

Syllabus: Awareness in the fields of Space

Prelims: About NASA's DART

Mains: Significance of DART mission and the prospects of the kinetic impact technique

Context

NASA's Double Asteroid Redirection Test (DART) spacecraft collided with the space rock named Dimorphos on 27th September 2022.

DART (Double Asteroid Redirection Test) spacecraft

- NASA's DART mission is aimed at testing a method of planetary defense against near-Earth objects.
- DART is a joint project between NASA and the Johns Hopkins Applied Physics Laboratory (APL).
- DART Spacecraft is about 600 kilograms.
- The DART mission was launched in November 2021 from Vandenberg Space Force base in California through a **SpaceX Falcon 9 rocket**.
- The spacecraft uses the "**kinetic impact technique**" to deflect the trajectory of space objects which is also called the "kick" method.
- The DART spacecraft also carried a high-resolution **DRACO** (Didymos Reconnaissance and Asteroid Camera for Optical navigation) camera to observe the collision and its impact.
- Further, a small **Light Italian CubeSat for Imaging of Asteroids** (LICIACube) which was built by the Italian Space Agency was also ferried along with DART.
 - LICIACube is equipped with a camera and it relays pictures of the impact.

The mission

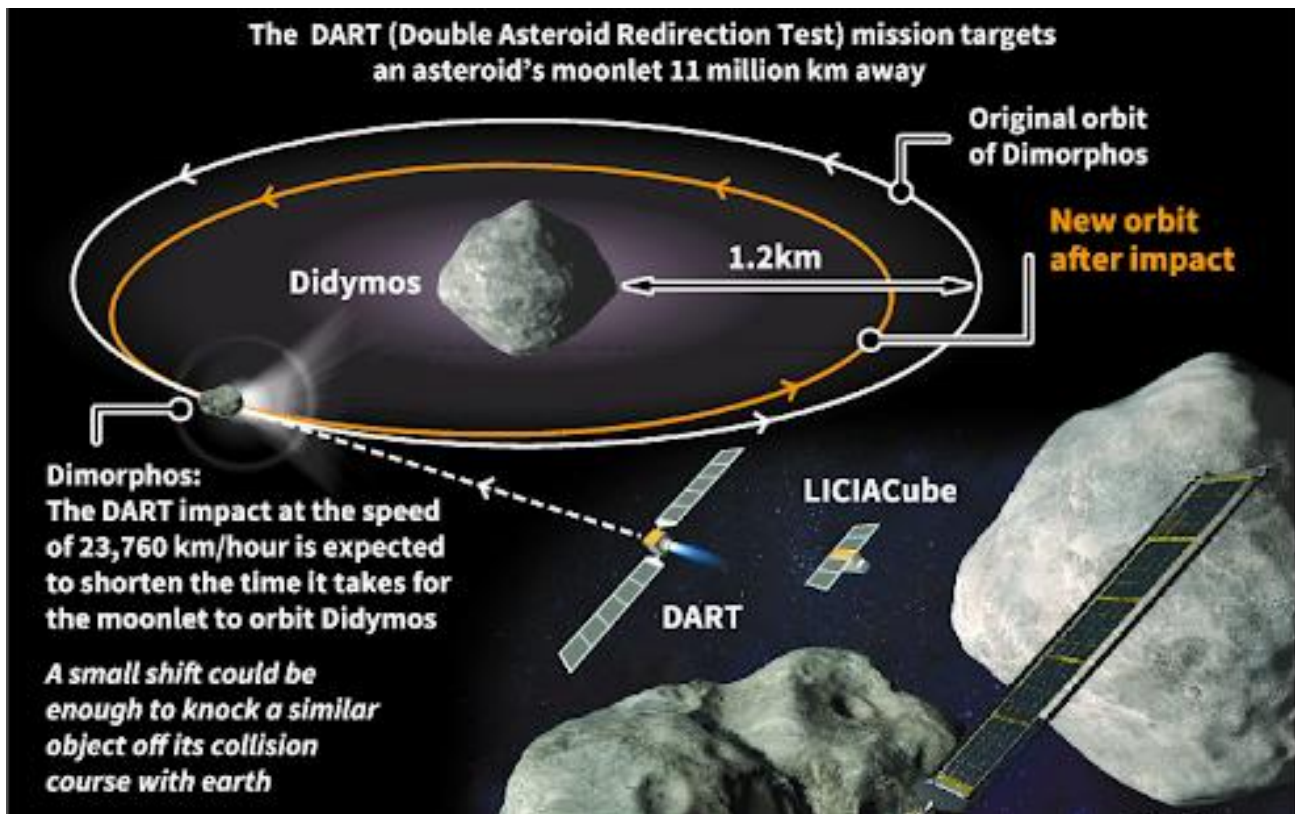


Image Source: The Hindu

- The objective of the mission was to crash the DART spacecraft into the space rock named **Dimorphos** which is about five billion kilograms in mass.
- The mission is regarded as a “suicide mission” as the spacecraft will be completely destroyed.
- **Dimorphos** is a moon of a slightly larger asteroid called **Didymos**.
 - Didymos is about 780 m at its widest, whereas Dimorphos is about 160 metres.
 - Scientists chose the Dimorphos as the target because of its relatively shorter orbit around Didymos. The deviation in this orbit would be more noticeable and easier to measure.

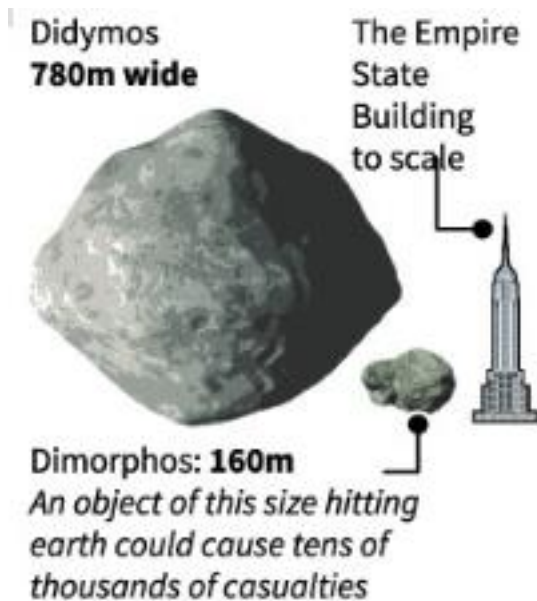


Image Source: The Hindu

- The spacecraft crashed at a speed of about 23,760 kilometres per hour with momentum sufficient enough to slash the angular momentum of Dimorphos, making it speed up and move closer to Didymos.
- This kinetic impact technique used has successfully deflected the trajectory of the pair of space rocks.
- This mission has demonstrated the ability to redirect a potentially dangerous asteroid from its impact on the earth.
- Further, NASA also tracks and monitors close to 26,115 asteroids whose orbits are dangerously close to the earth.

Future prospects of the kinetic impact technique

- China is expected to employ the technique to deflect an earth-crossing asteroid named **2020 PN1** sometime in 2026.
- One of the key challenges of mining rare earth elements has been the high environmental costs associated with it.
 - Rare earth elements such as yttrium, niobium, rhodium, palladium, osmium, iridium and scandium are crucial for developing green energy technologies.
 - However, the “kick” method can be used to deflect asteroids and move them into a convenient position for space mining.
 - NASA’s Asteroid Redirect Mission (ARM), which has now been shelved, aimed to bring a 20-tonne space rock near earth to study and mine.
- Also, collecting samples from space objects play an important role in space studies. There can be a technique devised to collect the space debris after the collision of spacecraft.

- The robotic Soviet Luna 16 in the 1970s, U.S. Apollo missions and China's first lunar sample-return mission, Chang'e 5 have brought back lunar soil.
- Japan Aerospace Exploration Agency (JAXA)'s Hayabusa 1, 25143 Itokawa, the Hayabusa 2 and 162173 Ryugu, and NASA's OSIRIS-Rex to near-earth asteroid Bennu are missions to extract and return samples from asteroids.
- Similarly, NASA's Stardust spacecraft returned with the dust collected from comet Wild-2 captured by an aerogel-based sample collector in 2004.

Nut graf: *The successful demonstration of the kinetic impact technique by the DART mission has not just shown the ability of mankind to save humanity from a potentially catastrophic collision of an asteroid but has also fueled space mining technologies which can unlock a new potential of the space economy.*

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Category: INTERNATIONAL RELATIONS

1. Permanent membership of the UNSC is another story

Syllabus: *Important International institutions, their structure, and mandate.*

Mains: *UNSC reforms.*

Prelims: *United Nations Security Council (UNSC)*

Context: UNSC reforms and permanent membership for India in the council.

Background Details:

- Almost 25 years ago, the nuclear weapons club had a total of five member countries. These five countries are the same as the Permanent members of the [United Nations Security Council](#), often referred to as P-5. These countries are China, France, the Russian Federation, the United Kingdom, and the United States.
- However, India, Israel, North Korea, and Pakistan also became nuclear-weapons-equipped countries.

- India has actively called for reforms in UNSC in the past few years and is constantly demanding permanent membership. Indian External Affairs Minister has proposed text-based negotiations instead of verbal references.

For more information on UNSC reforms, read here: [The United Nations Security Council Reforms - UPSC Notes \(GS II\)](#)

Veto Powers of P-5:

- While drafting the Charter of the United Nations in 1944-45, the article related to Security Council and specifically the right to vote underwent maximum debates, discussions, and controversy.
- The British representative suggested that the United Nations will either have the provision of veto or there would be no United Nations. The other participating countries (there was a total of 50) had to accept the first option.
- Even today there is a considerable amount of unhappiness about the veto powers among the other members of the UNSC.
- Incidents of the use of the Right to Veto:
 - Russia has used the veto a maximum number of times in comparison to the other three western countries. The number is estimated to be 120 or nearly half of all the vetoes cast.
 - The western countries have used their veto power multiple times to protect Israel in the Israel-Palestine question. They have also used it to prevent sanctions on the apartheid regime of South Africa.

Expanding P-5:

- The declared candidates for permanent membership are: Brazil, Germany, Japan, and India often referred to as G-4.
- At present Africa, Latin America, and the Caribbean are unrepresented in the permanent category. And thus Africa's claim for two permanent seats is widely understood and supported.

Challenges for the proposed candidates:

- Africa has not yet decided on the countries for permanent membership.
- In the case of India, apart from Pakistan's opposition, China's support cannot be expected.
- China will never support Japan's membership also.
- Brazil has regional claimants and opponents.
- Italy firmly opposes Germany's claim with an interesting argument that if both the axis power of the [Second World War](#) (Germany and Japan) join as permanent members, then Italy would be left out.

- The P-5 countries are rigidly opposed to any sort of dilution of their privileged position. Moreover, they are also opposing the conferring of Veto power to any new permanent member.
- Even the vast majority of other members are also apprehensive about more veto-wielding members in UNSC.
- The consent of two-thirds of the total membership of the UN along with the concurring votes of P-5 is required to amend the charter and expand the membership. This implies that each of the P-5 members will have the right to veto.
 - The charter of the UN has been amended only once in the 1960s, to expand the council by additional non-permanent seats.

Future Course of Action:

- India needs to be cautious about the veto power. It should be noted that Russians have bailed India out on many occasions like the Kashmir question. Moreover, Russia also helped India by vetoing unfavourable resolutions during the Bangladesh Liberation War in 1971.
- Some experts have suggested the creation of a new category of semi-permanent members. Countries under this category would be elected for a period of eight to ten years. India can consider this idea. However, there are counterarguments to this suggestion also.
- There is a proposal that a resolution should be defeated by a negative vote of at least two P-5 members, which can also be considered.

Also read: [UNSC & Permanent Seat for India: RSTV – Big Picture](#)

***Nut Graf:** Though countries are pitching for expansion of the permanent membership of the United Nations Security Council, there are many roadblocks in the path ahead. India needs to adopt a cautious approach apart from garnering support from other countries.*

2. Energising India-Nepal ties, the hydropower way

***Syllabus:** India and Neighbourhood relations.*

***Mains:** India-Nepal relations.*

***Prelims:** SR-6 project.*

Context: India and Nepal signed a Memorandum of Understanding to develop West Seti and Seti River (SR6) projects.

Details:

- Investment Board Nepal has signed a Memorandum of Understanding (MoU) with India's National Hydroelectric Power Corporation (NHPC) Limited to develop the 1200 MW West Seti and Seti River (SR6) projects.
- China was developing the project earlier but withdrew it four years back.
- The project was first proposed in the 1980s and was started by a French company. The project could not see the light of day and was transferred to an Australian firm. Due to environmental clearance and investment issues, it finally shifted to China. Later, Nepal domestically started working on the project.
- After changing many hands, Nepal has now collaborated with India to develop the SR 6 project.

India-Nepal Engagement and its Significance:

- Some of the projects of India and Nepal are:
 - Mahakali Treaty (6,480 MW)
 - Upper Karnali Project (900 MW)
 - Three projects of Arun (900MW) in eastern and western Nepal.
- Nepal has reposed its trust in India by signing the MoU. Once completed, it will provide India with the leverage in future hydropower cooperation with Nepal.
- It will also help India in minimizing the geopolitical influence of China on Nepal. It should also be noted that the West Seti Hydroelectric Project was a major Chinese venture under the [Belt and Road Initiative \(BRI\)](#).
- The hydropower projects also have the potential to boost cross-border power exchanges between the two neighbours.
- Nepal has a huge hydropower potential of 83,000 MW but still faces power shortages in peak season. Nepal's electricity exports to India have the potential to increase foreign exchange and address the challenge of power shortage. If the country can fully harness its hydropower potential it can generate revenue of ₹310 billion by 2030 and ₹1,069 billion per year by 2045 by exporting electricity to India.
- Owing to the ever-increasing energy demand in India, the Government of India is compelled to arrange for alternative energy sources. The West Seti Project can also help India in this regard.

For more information on India-Nepal relations, read here: [India-Nepal Relations](#)

Way Ahead:

- As the project has been delayed because of investment-related constraints there should be a cautious study of the investment environment, resettlement and rehabilitation cost, and distribution and transmission network.
- Nepal has raised concerns regarding the inadequacy of electricity rates and supply from India. Though various steps have been taken in this regard like a revised percentage share of energy, further steps should also be taken to address domestic demand in Nepal.

- To boost cross-border energy cooperation, the project can also be extended to other regional countries under the [Bangladesh-Bhutan-India-Nepal \(BBIN\)](#) framework. For instance, the combined hydropower potential of Nepal, Bhutan, and Northeast India can create a robust cross-border energy market.

Also read: [AIR Spotlight - Indo-Nepal Relations](#)

***Nut Graf:** The recent agreement on the SR-6 project between India and Nepal has opened new gates in the bilateral relations between the two neighbours. The project is equally significant for both countries in energy security and is a potential win-win situation at the regional level.*

F. Prelims Facts

1. Jaldoot Application

Syllabus: GS-3; Disaster Management

Prelims: About Jaldoot App

Context

The Government of India launched a mobile application called “Jaldoot”.

Jaldoot

- Jaldoot is a mobile application that would be used to **monitor groundwater levels** across the country.
- The Jaldoot application is **jointly developed by the Ministries of Rural Development and Panchayati Raj**.
- The app will be used to record the water levels of two or three open wells in every village **twice a year**, from May 1 to 31 during the pre-monsoon time and from October 1 to 31.
- The app is designed in such a way that it **works both in online as well as offline modes** to negate the issues of lack of Internet connectivity.
- The data recorded in the app would be integrated regularly with the database of the **National Water Informatics Centre**, which can be used for analysis and help in conservation efforts.
- To ensure transparency, the officers are mandated to **upload the geotagged photographs** through the app every time the measurement is done.

G. Tidbits

1. Jobs grew in final quarter of last fiscal, manufacturing is largest contributor: survey

Rise in jobs

An estimated total of 3.18 crore workers were found to be engaged in 5.31 lakh establishments during the 4th round (January-March, 2022) of the Quarterly Employment Survey, compared to a total of 3.14 crores in the third quarter

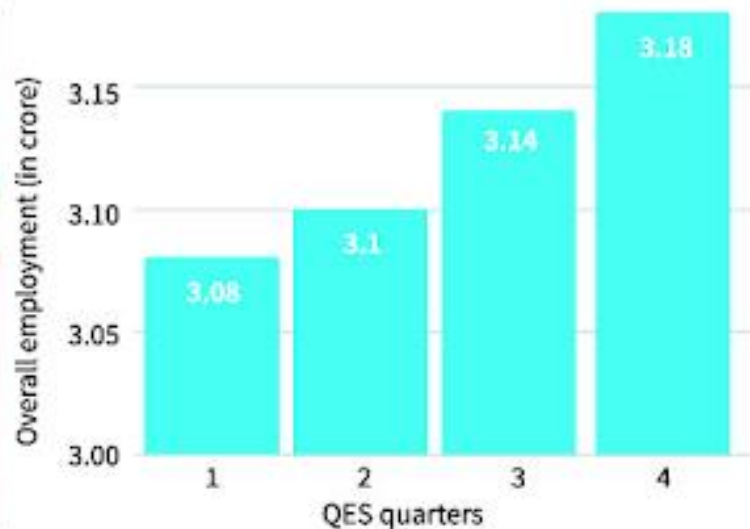


Image Source: The Hindu

- As per the fourth round (January-March 2022) of the **Quarterly Employment Survey (QES)**, which is a part of the [All India Quarterly Establishment based Employment Survey \(AQEES\)](#), the manufacturing sector continues to be the largest institutional employer in India by employing over 38.5% of the workers.
 - The manufacturing sector was followed by the education sector (21.7%), IT/BPO sector (12%) and health sector (10.6%).
- The participation of women workers has posted a marginal increase to 31.8% in the fourth quarter report as compared to 31.6% in the third quarter.
 - Women workers accounted for over 52% of the workforce in the health sector, and in education, financial services and IT/ BPO sectors the numbers stood at 44%, 41% and 36%, respectively.
- The survey has also noted that 86.4% of the workers were regular employees, 8.7% were contractual employees, casual employees (2.3%) and self-employed (2%).
- The overall employment has also shown an increasing trend as the estimates of employment increased from 3.14 crore in the third quarter (September-December 2021) to 3.18 crore in the fourth quarter.

- The Labour Bureau has taken up AQEES with an aim to provide quarterly estimates about employment and related variables of establishments in both organised and unorganised segments of nine sectors namely manufacturing, construction, trade, transport, education, health, accommodation and restaurant, IT / BPO and financial services.
 - The total employment in these nine selected sectors was reported as 2.37 crore in the sixth economic census (2013-14).

2. U.S. says relationships with India, Pakistan are distinct

- Replying to the Indian External Affairs Minister's remarks criticising the US's announcement of \$450 million to Pakistan for "sustainment and related equipment" for its F-16 fighter jets, the US has said that "its relationship with India and Pakistan are not in relation to each other".
- The State Department Spokesperson of the US also said that the U.S. also does everything it can to see that the [India-Pakistan relationship](#) is as "constructive" as possible.
- The US has also suggested Pakistan engage China on important issues of debt relief and restructuring so that Pakistan can recover quickly from the floods.
- Despite having differences with respect to the developments in Afghanistan, both the US and Pakistan would work together to support the human rights of Afghans, especially women and girls.

3. Carl-Gustaf M4 may be produced in India, says Sweden's SAAB

- The defence major SAAB of Sweden announced its plans to manufacture its Carl-Gustaf M4 weapon system in India. The manufacturing would be done by a new fully SAAB-owned subsidiary named SAAB FFV India Pvt. Ltd.
 - This move will facilitate the transfer of technology to India.
- As the Indian Army has already placed an order for the M4 version, the company would first meet the requirements of the Indian forces, and later look at exporting the subsystems to Sweden from where they would go into the global supply chain.
 - The Indian Army has been using the iconic Carl-Gustaf since 1976 and currently operates the Mk2 and Mk3 versions.
- The new facility will also be partnering with Indian sub-suppliers which is in line with India's vision of "Make in India".

H. UPSC Prelims Practice Questions

Q1. Consider the following statements with regards to the appointment of High

Court judges in India: (Level – Medium)

1. Article 217 of the Constitution states that the Judge of a High Court shall be appointed by the President in consultation with the Chief Justice of India (CJI), the Governor of the State.
2. High Court judges are recommended by a Collegium comprising the CJI and two senior-most judges.
3. The Government have, in consultation with the Chief Justice of India, decided as a matter of policy to appoint the Chief Justice of all High Courts from outside the respective state.

Choose the correct code:

- a. Only one of the given statements is correct.
- b. Only two of the given statements are correct.
- c. All the given statements are correct.
- d. None of the above statements is correct.

Answer: c

Explanation:

- **Statement 1 is correct**, According to Article 217 of the Constitution, the Judge of a High Court shall be appointed by the President in consultation with the Chief Justice of India (CJI), the Governor of the State.
- **Statement 2 is correct**, High Court judges are recommended by a Collegium comprising the CJI and two senior-most judges.
 - The proposal, however, is initiated by the Chief Justice of the High Court of the state concerned.
- **Statement 3 is correct**, The Government has, in consultation with the Chief Justice of India followed the policy of appointing the Chief Justice of High Courts from outside the respective States.

Q2. Consider the following statements with regards to Dadasaheb Phalke Award:

(Level – Difficult)

1. Dadasaheb Phalke Award was introduced by the government in 1969 and it was awarded for the first time to Devika Rani, “the first lady of Indian cinema”.
2. Dadasaheb Phalke played the main lead in India's first feature film Raja Harischandra.
3. Actors Prithviraj Kapoor and Vinod Khanna are the only posthumous recipients of the award.

Choose the correct code:

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

Answer: a

Explanation:

- **Statement 1 is correct**, Dadasaheb Phalke Award was introduced by the government in 1969 and it was awarded for the first time to Devika Rani, “the first lady of Indian cinema”.
- **Statement 2 is not correct**, Dadasaheb Phalke, popularly known as "the father of Indian cinema", was an **Indian filmmaker** who directed India's first full-length feature film, Raja Harishchandra (1913).
- **Statement 3 is correct**, Actors Prithviraj Kapoor and Vinod Khanna are the only posthumous recipients of the award.

Q3. Consider the following statements with regards to the forests in India: (Level – Medium)

1. In India, entry into forests is governed by two laws — The Indian Forest Act, 1927, and the Wildlife Protection Act, 1972.
2. The Wildlife Protection Act empowers the Chief Wildlife Warden of a state to frame laws for tourists entering Protected Areas — sanctuaries and national parks.
3. Night safari in wildlife sanctuaries is prohibited in India.

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**, In India, entry into forests is governed by two laws namely the Indian Forest Act, 1927, and the Wildlife Protection Act, 1972.
- **Statement 2 is correct**, The Wildlife Protection Act empowers the Chief Wildlife Warden of a state to frame laws for tourists entering Protected Areas such as sanctuaries and national parks.

- Under the same Act, the National Tiger Conservation Authority (NTCA) has the power to set rules for tiger reserves.
- **Statement 3 is not correct,** At present, there is no law in the country which prohibits night safaris in wildlife sanctuaries.

Q4. Consider the following statements: (Level – Easy)

1. Warmer oceans make stronger storms.
2. More than 90% of the excess heat from human-caused global warming over the past 50 years has been absorbed by the oceans.
3. Higher surface temperatures allow hurricanes to reach higher levels of maximum sustained wind.

Choose the correct code:

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

Answer: d

Explanation:

- **Statement 1 is correct,** Warmer oceans make stronger storms as the evaporation intensifies as temperatures increase and so does the transfer of heat from the oceans to the air.
- **Statement 2 is correct,** Studies have found that the ocean has absorbed more than 90% of the excess heat from human-caused global warming between 1971 and 2010.
- **Statement 3 is correct,** Higher surface temperatures allow hurricanes to reach higher levels of maximum sustained wind.

Q5. In a given year in India, official poverty lines are higher in some States than in others because (Level – Medium) PYQ (2019)

- a. Poverty rates vary from State to State
- b. Price levels vary from State to State
- c. Gross State Product varies from State to State
- d. Quality of public distribution varies from State to State

Answer: b

Explanation:

- The poverty line depends upon the income **profile of the population** vis-à-vis the cost of the standard basket of consumption.
- Thus, it is a function of the cost of the consumption basket which varies from state to state. It is not related to GSDP or the quality of public distribution services.

I. UPSC Mains Practice Questions

1. 'NASA's DART program has the potentiality to avert the extinction of the humankind on Earth.'
Elucidate. (150 words, 10 marks) (GS III - Science and Technology)
2. 'The Labour Bureau's AQEE survey is indicative of post COVID-19 economic recovery.'
Discuss. (150 words, 10 marks) (GS III - Economy)