

**FOREIGN AFFAIRS**

**China-Philippines tussle: The South China Sea dispute**

**In Context: Countries have bickered over territorial control in the South China Sea for centuries, but in recent years tensions have soared to new heights. What is the dispute? Which countries are involved?**

**Details**

- ✓ On Monday (September 26), the Philippine coast guard announced it had dismantled a floating barrier built by China's coast guard to prevent Filipino fishing vessels from entering a contentious area in the South China Sea.
- ✓ The 300-metre-long barrier was built at the Scarborough Shoal, roughly 200 kilometers off the coast of the Philippines. The country said the blockade violated international law and violated its sovereignty.
- ✓ Since 2012, China and the Philippines have been at odds over the Scarborough Shoal; both claim sovereignty over it, although sovereignty has never been proved, and it is effectively under Beijing's control. The new incident has brought the South China Sea dispute to the forefront once more.
- ✓ What exactly is the point of contention? When and why did it appear? Who are the countries involved? We investigate.

**What is the South China Sea conflict?**

- ✓ The South China Sea is situated just south of the Chinese mainland and is bordered by the countries of Brunei, China, Indonesia, Malaysia, Philippines, Taiwan and Vietnam.
- ✓ The countries have bickered over territorial control in the sea for centuries, but in recent years tensions have soared to new heights.
- ✓ **The reason?** China's rise as a global power. The South China Sea is one of the most strategically critical maritime areas (more on this later) and China eyes its control to assert more power over the region.
- ✓ In 1947, the country, under the rule of the nationalist Kuomintang party, issued a map with the so-called "nine-dash line" (for a detailed explanation, scroll down). The line essentially encircles Beijing's claimed waters and islands of the South China Sea — as much as 90% of the sea has been claimed by China. The line continued to appear in the official maps even after the Chinese Communist Party (CCP) came to power.
- ✓ In the past few years, the country has also tried to stop other nations from conducting any military or economic operation without its consent, saying the sea falls under its Exclusive Economic Zone (EEZ).
- ✓ China's sweeping claims, however, have been widely contested by other countries. In response, China has physically increased the size of islands or created new islands altogether in the sea, according to the Council on Foreign Relations (CFR).
- ✓ "In addition to piling sand onto existing reefs, China has constructed ports, military installations, and airstrips—particularly in the Paracel and Spratly Islands, where it has twenty and seven outposts, respectively. China has militarised Woody Island by deploying fighter jets, cruise missiles, and a radar system," it added.
- ✓ To challenge China's assertive territorial claims and protect its own political and economic interests, the US has intervened in the matters. It has not only increased its military activity and naval presence in South Asia but also provided weapons and aid to China's opponents.

**What's the importance of the South China Sea?**

- ✓ There are 11 billion barrels of oil and 190 trillion cubic feet of natural gas in deposits under the South China Sea, according to the estimates of the United States Energy Information Agency.
- ✓ Moreover, the sea is home to rich fishing grounds a major source of income for millions of people across the region. The BBC reported that more than half of the world's fishing vessels operate in this area.
- ✓ Most significantly, the sea is a crucial trade route.
- ✓ The United Nations Conference on Trade and Development estimates that over 21% of global trade, amounting to \$3.37 trillion, transited through these waters in 2016.

**What is the 'nine-dash line'?**

- ✓ As mentioned before, the nine-dash line demarcates China's territorial claims in the sea on Chinese maps.
- ✓ It was initially the "eleven-dash line" but in 1953, the CCP-led government removed "the portion encompassing the Gulf of Tonkin, simplifying the border to nine dashes.
- ✓ The line runs as far as 2,000 km from the Chinese mainland to within a few hundred kilometres of the Philippines, Malaysia and Vietnam.
- ✓ But on what parameters the line has been drawn? China's claim on the waters and islands within the boundary is based on its "historical maritime rights".
- ✓ However, the country has never clearly stated the line coordinates and the line runs many miles beyond what is allowed under the United Nations treaty on maritime territorial issues, which China has signed.

- ✓ Take the example of the Scarborough Shoal, also known as Huangyan Island. While it comes under the Philippines' EEZ, Beijing claims that the records show "China's sailors discovered Huangyan Island 2,000 years ago and cite extensive records of visits, mapping expeditions and habitation of the shoal from the Song Dynasty (960-1279 AD) right through to the modern period.
- ✓ Similarly, China says it has centuries-old ties with the Paracel and Spratly island chains as they were once an integral part of the Chinese nation. But Vietnam disputes the claim, saying it has actively ruled over both the Paracels and the Spratlys since the 17th Century — and has the documents to prove it, the BBC report said.
- ✓ In 2016, after the Philippines took China to an international tribunal pertaining to the dispute over the Scarborough Shoal, the tribunal in its ruling largely rejected the nine-dash line and said, China had broken international law by endangering Philippine ships and damaging the marine environment.
- ✓ Although the tribunal's judgement was binding, there was no enforcement mechanism. China boycotted the proceedings, claiming the tribunal had no jurisdiction and that it would ignore any decision.

**How can the dispute be resolved?**

- ✓ It's hard to say. A quick solution to the dispute seems quite impossible, especially after China refused to abide by the international tribunal's ruling.
- ✓ Some believed that ASEAN (the Association of Southeast Asian Nations) — a 10-member regional grouping that comprises Thailand, Indonesia, Malaysia, the Philippines, Singapore, Brunei, Laos, Vietnam, Myanmar and Cambodia — might find a way to tackle the issue. Due to internal conflicts, the group has largely failed to do so.
- ✓ The failure of Chinese and Southeast Asian leaders to resolve the disputes by diplomatic means could also undermine international laws governing maritime disputes and encourage destabilising arms buildups
- ✓ Therefore, there is a palpable fear that the South China Sea dispute can soon become the next global conflict, with grave consequences.

**SCIENCE & TECHNOLOGY**

**NavIC**

**In Context: Indian wants to develop its regional satellite navigation system NavIC (Navigation in Indian Constellation) to increase its use in the civilian sector as well as ships and aircraft traveling outside the country's borders.**

**About**

- ✓ NavIC, or the Indian Regional Navigation Satellite System (IRNSS), is constructed with a constellation of seven satellites and a network of ground stations that operates 24 hours a day, seven days a week.
- ✓ There are eight satellites in all, although only seven are operational.
- ✓ There are three geostationary satellites and four geosynchronous satellites.
- ✓ The first satellite of the constellation (IRNSS-1A) was launched on July 1, 2013, while the eighth satellite, IRNSS-1I, was launched in April 2018.
- ✓ With the seventh launch of the constellation's satellite (IRNSS-1G), India's Prime Minister renamed IRNSS NavIC in 2016.
- ✓ The International Maritime Organization (IMO) approved it as a component of the World-Wide Radio Navigation System (WWRNS) for use in the Indian Ocean Region beginning in 2020.

**Potential Uses:**

- ✓ Potential applications include terrestrial, aerial, and maritime navigation, as well as disaster management.
- ✓ Vehicle monitoring and fleet management (particularly in the mining and transportation industries);
- ✓ Mobile phone integration;
- ✓ Accurate timing (as in ATMs and electricity grids);
- ✓ Mapping and geodetic data collection.

**Significance**

- ✓ It provides real-time information for two services: standard positioning for civilian use and restricted positioning for approved users such as the military.
- ✓ India is now one of the five countries with its own navigation system. As a result, India's reliance on foreign countries for navigation decreases.
- ✓ It will aid India's scientific and technical advancement. It is critical for the country's sovereignty and strategic needs.

- ✓ In compliance with the Nirbhaya case judgement, the government made NavIC-based vehicle trackers mandatory for all commercial cars in the country in April 2019.
- ✓ Qualcomm Technologies has also announced smartphone chipsets that support NavIC.
- ✓ In addition to comprehensive coverage, one of the project's planned future purposes is sharing the project with the SAARC nations. This would aid in the greater integration of the regional navigation system and is a diplomatic gesture from India to the countries of the region.

**What are the Issues and Intended Improvements?**

**L Band:**

- ✓ ISRO plans to replace at least five satellites with the improved L-Band, which would enable it to offer better global positioning services to the public as several satellites of the constellation have outlived their lives.
- ✓ Five more satellites will be launched periodically to replace the defunct satellites.
- ✓ The new satellites will have L-1, L-5 and S Band.
- ✓ L1, L2 and L5 are GPS frequencies, where L1 frequency is used to track GPS satellite location, L2 frequency is used to track the health of the GPS satellites and the L5 frequency is used to improve accuracy for civilian use such as aircraft precision.
- ✓ S band operate on a wavelength of 8-15 cm and a frequency of 2-4 GHz. Because of the wavelength and frequency, S band radars are not easily attenuated.

This makes them useful for near and far range weather observation.

**Long Code for Strategic Sector:**

- ✓ Currently ISRO is providing only short code. Now, the short code has to become long code for strategic sector use so that the signal cannot be breached or spoofed or made non-available.
- ✓ It will be done so that the user base can be widened and to make it user friendly.

**IRNSS**  
**Indian Regional Navigation Satellite System**

IRNSS (NavIC) is designed to provide accurate real-time positioning and timing services to users in India as well as region extending up to 1,500 km from its boundary

**NAVIGATION CONSTELLATION CONSISTS OF SEVEN SATELLITES**

- 3 in geostationary earth orbit (GEO) and
- 4 in geosynchronous orbit (GSO) inclined at 29 degrees to equator

Each sat has three rubidium atomic clocks, which provide accurate locational data

**IT WILL PROVIDE TWO TYPES OF SERVICES**

- 1 Standard positioning service | Meant for all users
- 2 Restricted service | Encrypted service provided only to authorised users (military and security agencies)

**Applications of IRNSS are:** Terrestrial, aerial and marine navigation; disaster management; vehicle tracking and fleet management; precise timing mapping and geodetic data capture; terrestrial navigation aid for hikers and travellers; visual and voice navigation for drivers

While American GPS has 24 satellites in orbit, the number of sats visible to ground receiver is limited. In IRNSS, four satellites are always in geosynchronous orbits, hence always visible to a receiver in a region 1,500 km around India

Geostationary earth orbit  
Geosynchronous orbit

**Mobile Compatibility:**

- ✓ Currently, the mobile phones in India haven't been made compatible to process its signals.
- ✓ The Indian government has been pressing manufacturers to add compatibility and has set a deadline of January 2023 but media reports suggest this is unlikely before 2025.

**What other Navigation Systems are there in the world?**

**Four global systems:**

- ✓ GPS from the U.S.
- ✓ GLONASS from Russia.
- ✓ Galileo from European Union
- ✓ BeiDou from China.

**Two regional systems:**

- ✓ NavIC from India
- ✓ QZSS from Japan.

**What is the need for NavIC when others are already in operation?**

- ✓ The defense agencies of the respective countries operate GPS and GLONASS.
- ✓ It is possible that civilian service will be diminished or denied.
- ✓ NavIC is an independent regional system that covers the Indian subcontinent and does not rely on other systems to provide position service within its service area.
- ✓ The Government of India has complete control over it.

**The Way Forward**

- ✓ More satellites in a lower orbit than the current constellation would be required to make NavIC fully worldwide, similar to GPS.
- ✓ NavIC's current range extends barely 1,500 kilometers beyond Indian borders. However, for our ships and airplanes to travel beyond that, we would require satellites in Medium Earth Orbit. We can keep adding MEO satellites to eventually make this global.

**PRELIM FACTS**

**1. Sarcophagus**

**Context:** Palestinian workmen in the Gaza Strip recently discovered scores of ancient burials, including two lead Sarcophagi, in a cemetery going back nearly 2,000 years to the Roman Empire.

**About**

- ✓ It is a stone container above earth for a coffin or dead body that is often embellished with paintings, inscriptions, and sculptures.
- ✓ Sarcophagus is derived from the Greek words "sarx" for "flesh" and "phagien" for "to eat," therefore it literally translates as "eater of flesh."
- ✓ The sarcophagus was first utilized in Ancient Egypt and Greece, and it progressively spread throughout the ancient world.
- ✓ It was commonly used for high-ranking members of the clergy, administration, or aristocracy in later European civilization.

**Features**

- ✓ They differ in detail from one culture to the next.
- ✓ They are nearly always made of stone, the most common being limestone, but they can also be made of granite, sandstone, or marble.
- ✓ They were often created by being ornately carved, ornamented, or manufactured.
- ✓ Some were constructed to stand alone above ground as part of an ornate burial or tombs. Others were designed for burial or crypt placement.

**Archaeological Significance:**

- ✓ Sarcophagi are important relics for archaeologists and historians because they reveal information about the art, culture, and beliefs of the people who created them.
- ✓ Sarcophagi carvings and inscriptions frequently convey important historical information.
- ✓ The most famous Egyptian sarcophagus is perhaps King Tutankhamun's golden sarcophagus.

**2. PET (Polyethylene Terephthalate)**

**Context:** Researchers have recently discovered a new deep-sea enzyme capable of degrading PET.

**About**

**PET (Polyethylene Terephthalate):**

- ✓ It is the most widely used thermoplastic polymer in the planet.
- ✓ It is a member of the polyester family.
- ✓ PET is created through the polymerization of ethylene glycol and terephthalic acid.
- ✓ When ethylene glycol and terephthalic acid are heated together in the presence of chemical catalysts, they generate PET in the form of a molten, viscous material that can be spun directly into fibers or solidified for further processing as plastic.

**Properties:**

- ✓ It is highly flexible, colorless and semi-crystalline resin in its natural state.
- ✓ It shows good dimensional stability, resistance to impact, moisture, alcohols and solvents.
- ✓ It exhibits excellent electrical insulating properties.
- ✓ It is very lightweight, which reduces transportation costs.
- ✓ It has good gas (oxygen, carbon dioxide) and moisture barrier properties.
- ✓ It is recyclable. It can be commercially recycled by thorough washing and re-melting, or by chemically breaking it down to its component materials to make new PET resin.

**Applications:**

- ✓ It is widely used for packaging foods and beverages, especially convenience-sized soft drinks, juices and water.
- ✓ The polymer finds use in fabrics, and the textile industry.
- ✓ It is also used in films to mold parts for automotive, electronics, etc.
- ✓ PET's insulating properties and resistance to moisture make it suitable for various electrical and electronic components, such as insulation for electrical wires and connectors.

**3. Brent Crude**

**Context: Brent crude just touched a 10-month high of \$93/barrel.**

**About**

- ✓ It is the most extensively used benchmark for determining global oil prices.
- ✓ The term "Brent" alludes to the Brent oil field, which was discovered in the 1970s and has since become a major source of oil production.
- ✓ Brent is the most commonly used benchmark, accounting for around two-thirds of all internationally traded crude oil supplies.
- ✓ It is a light, sweet crude oil derived from various North Sea oil basins.
- ✓ Brent crude oil's distinct features, such as low density and low sulphur content, make it easier to refine into products such as gasoline.
- ✓ Brent crude oil is easy to transport to remote regions because it is supplied by water.
- ✓ Various variables influence the Brent Crude oil price, including supply and demand dynamics, geopolitical events, production disruptions, and economic considerations.

**What is Sweet Crude?**

- ✓ It refers to crude oil that is extracted that is found to contain very low amounts of sulfur.
- ✓ Sulfur is undesirable in crude oils because it lowers the yield of high-value refined products, including gasoline and plastics.

**Other Oil Benchmarks:**

- ✓ West Texas Intermediate (WTI)
- ✓ Dubai Crude

**4. Circular RNA**

**Context: Recently, researchers from the Indian Institute of Science Education and Research Bhopal (IISER Bhopal) identified a specific circular RNA (circRNA) called 'ciTRAN', which plays a crucial role in the multiplication of the AIDS-causing HIV-1 virus within the human body.**

**About**

- ✓ Ribonucleic acid is a molecule found in living cells that transports genetic information and aids in protein creation.
- ✓ In general, RNAs have straight-chain, free-end structures, while circular RNA ('circRNA') has a closed-loop structure.
- ✓ The circRNA regulates gene expression and is required for a variety of biological functions.
- ✓ For a long time, its involvement in HIV-1 replication was unknown.
- ✓ Circular RNA is difficult to characterize since it is usually less plentiful, making it even more difficult to detect in its native state.
- ✓ There is so much information from the virus during viral infections that it can be difficult to locate the less common ones, such as circular RNA.

**Highlights of recent discoveries**

- ✓ The researchers used a unique technique called 'circDR-Seq' to successfully extract circRNAs from HIV-1 infected T-cells (white blood cells) and identified a specific circRNA called ciTRAN, which plays a crucial role in viral replication.

- ✓ HIV-1 viral protein R (VpR) is a multifunctional protein that plays distinct roles in many stages of the HIV-1 viral life cycle and influences immune cell anti-HIV capabilities.
- ✓ It was also shown that HIV-1 infection increases ciTRAN expression in a Vpr-dependent manner, and that ciTRAN interacts with SRSF1, a protein known to suppress HIV-1 transcription."

**How does this work?**

- ✓ The results suggest that HIV-1 hijacks ciTRAN which is generally altered during immunological signaling, inflammation, and viral infection.
- ✓ It further prevents (SRSF1) from doing its job, thereby promoting efficient viral transcription.
- ✓ In addition, researchers demonstrated that an SRSF1-inspired mimic can inhibit viral transcription regardless of ciTRAN induction.
- ✓ The hijacking of a host circRNA thus represents a previously unknown facet of primate lentiviruses in overcoming transmission bottlenecks.

**5. Galactic Tides**

**Context: The universe's galaxies, like the earth's oceans, experience tides, but on a much larger scale.**

**About**

- ✓ It is a tidal force experienced by objects subject to the gravitational field of a galaxy such as the Milky Way.
- ✓ They are caused by gravitational forces within a galaxy, arising in the interactions between celestial objects like stars and gas clouds.

**Galactic tides and their effects**

- ✓ These tidal forces have an impact on many elements of a galaxy's evolution.
- ✓ They have the ability to modify the structure of a galaxy by forming tidal tails and bridges, stimulating star formation, and disturbing smaller star systems.
- ✓ They also cause star orbits to be disrupted, resulting in long-term alterations in galaxy structure.
- ✓ Galactic tides also influence how nearby galaxies interact and do not interact.
- ✓ Researchers studied the enormous Andromeda galaxy, which is the nearest galaxy to the Milky Way, and discovered that tidal streams along its boundaries could be signs of dwarf galaxies that were later devoured.
- ✓ Galactic tides also influence supermassive black holes at galaxy centers, causing events that alter how these cosmic animals interact with nearby stars.

**ANSWER WRITING**

**GS 4- ETHICS CASE STUDIES**

**Case Study**

You are the founder of a social enterprise that provides solar lamps to rural villages that lack access to electricity. You have been working hard to scale up your impact and reach more communities in need. One day, you receive an email from the CEO of a major oil company who is interested in partnering with you. He says that he wants to support your cause and help you expand your operations. He also mentions that he has to meet Environmental, Social and Governance (ESG) standards for his company. However, over the years working with renewable energy, you have developed a strong aversion to fossil fuel companies. Now, the CEO's offer has put you in a moral dilemma. On one hand, you resent the idea of accepting help from a company that is contributing to climate change and environmental degradation, and on the other hand, you feel that the company's assistance is a golden opportunity for your social enterprise to provide more light to the dark.

- A. What are the various ethical issues involved here?
- B. Will it be morally right for you to accept money from the oil company?

**Introduction**

This case study revolves around the founder of a social enterprise focused on providing solar lamps to rural villages without access to electricity. The founder faces a moral dilemma when approached by the CEO of a major oil company offering support to expand operations. This offer raises ethical issues related to environmental responsibility, moral integrity, social impact, corporate responsibility, and the potential for perceived hypocrisy. The central question is whether it is morally right for the founder to accept funding from the oil company, given their strong aversion to fossil fuel companies and the environmental impact they represent.

**A. Various Ethical Issues involved in the case:**

**Environmental Responsibility:** The oil company is a significant contributor to climate change and environmental degradation through the extraction and burning of fossil fuels. Accepting support from such a company might be seen as indirectly endorsing or benefiting from their environmentally harmful activities.

**Moral Integrity and Values:** As the founder of a social enterprise focused on renewable energy and sustainability, you have likely built your organization on strong values and principles aligned with environmental responsibility. Accepting funds from an oil company may be viewed as a betrayal of these principles.

**Social Impact vs. Funding Source:** There's a tension between the potential for greater social impact by expanding your operations and the moral conflict of accepting financial assistance from a source that goes against your core values.

**ESG Standards and Corporate Responsibility:** The oil company's CEO mentions their commitment to Environmental, Social, and Governance (ESG) standards. This raises questions about whether their offer reflects a genuine commitment to positive change or if it's merely a form of greenwashing to improve their public image.

**Perceived Hypocrisy:** Accepting funding from an oil company could open your social enterprise to criticism and accusations of hypocrisy from stakeholders, including donors, customers, and the communities you serve, who may view this partnership as contradictory to your mission.

**Long-term Implications:** You must consider the long-term implications of this partnership. Will it compromise your ability to maintain your organization's independence and mission? What control or influence might the oil company exert over your operations?

**B.** It would be morally right to accept money from the oil company, there's no one-size-fits-all answer. My decision would be guided by my own values and the mission of my social enterprise. While making my decision, I'll consider the following things:

**Intent and Impact:** I would assess the oil company's intentions. Are they genuinely committed to supporting sustainable solutions and reducing their environmental footprint, or is this primarily a PR move? I would also evaluate the potential positive impact of their support on your mission.

**Mitigating Negative Effects:** I would consider whether I can negotiate terms that allow me to maintain my organization's independence and continue to prioritize renewable energy and sustainability. Additionally, I would seek assurances that their involvement won't compromise my values.

**Transparency and Accountability:** I would ensure that the partnership is transparent, and both parties are held accountable for their commitments. This includes clear reporting mechanisms and regular evaluations of the partnership's impact.

**Alternative Funding Sources:** I would explore alternative sources of funding that align more closely with my values and mission. It may take more effort, but finding partners or donors who share my vision could help me avoid compromising my principles.

**Conclusion**

Ultimately, the decision made by me will be based on the value system of my organization. Through all this discourse, I would engage in a thorough ethical reflection, consult with the stakeholders, and carefully weigh the potential benefits and drawbacks before making a choice that aligns with my organization's mission and values.

**MCQs**

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| <p><b>1. Consider the following statements regarding Galactic Tides:</b></p> <ol style="list-style-type: none"> <li>1. It is a tidal force experienced by objects subject to the gravitational field of a galaxy such as the Milky Way.</li> <li>2. Galactic tides also influence supermassive black holes at galaxy centers.</li> </ol> <p><b>Which of the above statements is/are incorrect?</b></p> <ol style="list-style-type: none"> <li>a) 1 only</li> <li>b) 2 only</li> <li>c) Both 1 and 2</li> <li>d) Neither 1 nor 2</li> </ol> | <p><b>2. Which of the following statements is/are not correct regarding 'The L-69 grouping'?</b></p> <ol style="list-style-type: none"> <li>1. It is a grouping of developing countries, for the reform of the United Nations Security Council.</li> <li>2. It includes countries from Africa, Asia only.</li> </ol> <p><b>Select the correct answer using the code given below:</b></p> <ol style="list-style-type: none"> <li>a) 1 only</li> <li>b) 2 only</li> <li>c) Both 1 and 2</li> <li>d) Neither 1 nor 2</li> </ol> |
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**3. Consider the following statements regarding 'Privilege Committee':**

1. In the Lok Sabha, the committee consists of 15 Members nominated by the Speaker.
2. In the Rajya Sabha, the deputy chairperson heads the committee of privilege.

**Which of the statements given above is/are not correct?**

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

**4. With reference to "Fish Mint", consider the following statements:**

1. It is a medicinal herb.
2. In terms of appearance, it looks like a fish.
3. It is known as Masunduri in Assam.

**Which of the statements given above is/are correct?**

- a) 2 only
- b) 1 and 2 only
- c) 1 and 3 only
- d) 1, 2 and 3

**5. Consider the following assertions regarding Phosphorus:**

1. India is the world's top phosphorus importer.
2. In India, only Rajasthan and Gujarat produce rock phosphate.
3. Phosphorus deficiency produces algal blooms, reducing oxygen in bodies of water and killing fish.

**How many of the statements above are correct?**

- a) Only one
- b) Only two
- c) All three
- d) None

**6. With reference to the United Nations Climate Ambition Summit (CAS), consider the following statements:**

1. The CAS aimed to accelerate climate action as a prelude to the 28th Conference of Parties (COP28).
2. China, USA and India are the most active participants of CAS.
3. In this Summit, India updated its goal to achieve net-zero emissions by 2070.

**How many of the statements given above are correct?**

- a) Only one
- b) Only two
- c) All three
- d) None

**7. Consider the following claims about Brent Crude:**

1. It is a type of oil derived from oil fields in the Persian Gulf.
2. It has a low density and sulphur content, making it easier to refine into products such as gasoline.
3. The majority of all internationally traded crude oil supplies are priced in relation to Brent Crude.

**How many of the statements above are correct?**

- a) Only one
- b) Only two
- c) All three
- d) None

**8. Consider the following statements regarding Polyethylene Terephthalate (PET):**

1. It is the most widely used thermoplastic polymer on the planet.
2. It is resistant to impact, dampness, alcohols, and solvents.
3. It is frequently utilized in the packaging of goods and beverages.

**How many of the above statements are correct?**

- a) Only one
- b) Only two
- c) All three
- d) None

**9. Consider the following statements about Sarcophagus:**

1. They are stone containers embellished with paintings, inscriptions, and carvings for deceased bodies.
2. They were first utilized during the Indus Valley civilization.

**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

**10. The Psyche spacecraft, which has recently made headlines, is created by:**

- a) European Space Agency (ESA)
- b) Indian Space Research Organisation (ISRO)
- c) National Aeronautics and Space Administration (NASA)
- d) Russian Space Agency (Roscosmos)