

Solutions

DATE : 2nd Sept-8th Sept

1. **Solution: b)**

In the case of **Mithu vs. State of Punjab (1983)**, the Supreme Court of India declared that a mandatory death sentence violates **Article 14** (right to equality) and **Article 21** (right to life and personal liberty) of the Indian Constitution. The court reasoned that a law mandating a death sentence without considering individual circumstances is arbitrary and deprives a person of their right to life without due process, making it unfair and unjust.

2. **Solution: c)**

The **Poshan Tracker** initiative, launched by the Ministry of Women and Child Development, aims to monitor the **growth and nutrition of children** aged 0-6 years in real-time. It uses WHO growth charts to assess the nutritional status of children and helps identify health issues early, ensuring timely intervention at Anganwadi Centers. This tool is part of the government's efforts to combat malnutrition and promote child health across India.

3. **Solution: d)**

The **Vishvasya-Blockchain Technology Stack** was launched by the Government of India to provide **Blockchain-as-a-Service (BaaS)**. This technology stack supports the development of **permissioned blockchain applications** by offering a geographically distributed infrastructure that ensures security and decentralization. It enables organizations to build and manage blockchain-based applications using cloud-based tools, enhancing the efficiency and transparency of various digital processes.

4. **Solution: b)**

Financialisation is the process where **financial markets, financial motives, and financial institutions** start to dominate economic activities, often at the expense of traditional sectors like manufacturing and agriculture. It implies a shift from production-based economic activities to finance-driven activities, where profit-making is primarily pursued through financial channels, such as investments in stocks and bonds, rather than the production of goods and services.

5. **Solution: c)**

The **India Graphene Engineering and Innovation Centre (IGEIC)** was established by the Ministry of Electronics and IT (MeitY) to **bridge the gap between research and development (R&D) and commercialization** in the field of graphene technology. The center supports startups and industries to innovate and develop products based on graphene, a material with immense potential due to its exceptional electrical, thermal, and mechanical properties.

6. **Solution: a)**

The correct statements regarding **Quantum Theory and General Relativity** are:

- **Statement 1:** Quantum Theory explains the behavior of matter and energy at very small scales, such as subatomic particles.
- **Statement 2:** General Relativity describes the motion of large objects in gravitational fields, like planets and stars.
- **Statement 3** is incorrect because Quantum Theory and General Relativity have not been

Wisdom Leads to Success

unified into a single theory of quantum gravity, and they currently remain incompatible frameworks in physics.

7. **Solution: c)**

Graphene is known for its exceptional properties: it is stronger than steel, conducts electricity efficiently, and is biocompatible.

- **Option c)** is incorrect because graphene is a lightweight material, much lighter than lead. This makes it suitable for a wide range of applications, from flexible electronics to biomedical devices.

8. **Solution: d)**

All three statements about **blockchain technology** are correct:

- **Statement 1:** Each block in the blockchain contains encrypted data, making it tamper-proof.
- **Statement 2:** Blockchain operates on a decentralized network, meaning no single entity controls the data.
- **Statement 3:** Smart contracts in blockchain enable self-executing contracts that automatically enforce agreements.

9. **Solution: a)**

The correct statements regarding the risks of **financialisation** are:

- **Statement 1:** Excessive financialisation can lead to inflated asset prices, making markets vulnerable to crashes.
- **Statement 2:** Financialisation tends to benefit wealthy individuals more than lower-income groups, contributing to economic inequality.
- **Statement 3** is incorrect because financialisation often leads to increased debt levels rather than a decrease.

10. **Solution: a)**

The correct statements regarding **graphene** are:

- **Statement 1:** Graphene is made of pure carbon, like graphite, but has a different structure—a one-atom-thick layer of carbon atoms arranged in a hexagonal lattice.
- **Statement 2:** It has the potential to revolutionize the electronics and aerospace industries due to its strength, conductivity, and flexibility.
- **Statement 3** is incorrect because graphene does not have natural magnetic properties; it is primarily known for its conductivity and mechanical strength.

11. **Solution: b)**

Black Coat Syndrome refers to the psychological unease and intimidation felt by common citizens when dealing with the judicial system, particularly in courtroom settings. This anxiety stems from the complexity of legal proceedings, prolonged delays, financial burdens, and the unfamiliarity of the legal process. It particularly affects people from marginalized and vulnerable sections of society, making them reluctant to seek justice despite having legitimate grievances.

12. **Solution: a)**

The **FWD 200B UAV**, developed by Bengaluru-based Flying Wedge Defence and Aerospace (FWDA), is India's first indigenous combat unmanned aerial vehicle (UAV). This Medium Altitude Long Endurance (MALE) Unmanned Combat Aerial Vehicle (UCAV) is designed for both surveillance and combat roles, featuring optical payloads and missile-like weapons. Its successful maiden flight reflects India's growing capabilities in defense technology

and efforts to reduce dependence on foreign military equipment.

13. **Solution: b)**

The “**VishanuYuddh Abhyas**” mock drill focuses on assessing India's preparedness for **zoonotic disease outbreaks** under the National One Health Mission (NOHM). It tests the readiness of the National Joint Outbreak Response Team (NJORT), comprising experts from human health, animal husbandry, and wildlife sectors. The mock drill also involves collaboration between agencies such as the NCDC and ICMR to strengthen national health security.

14. **Solution: b)**

The most significant advantage of the **GNSS-based Electronic Toll Collection (ETC) system** over the current FASTag system is that it **eliminates the need for stopping at toll plazas**. By using Global Navigation Satellite System (GNSS) technology, tolls are calculated automatically based on the distance traveled, allowing vehicles to pass seamlessly without slowing down or stopping. This reduces congestion and improves traffic flow on highways.

15. **Solution: b)**

Parkinson's disease primarily affects **neurons**, specifically the dopaminergic neurons in the substantia nigra, a part of the brain that plays a key role in regulating movement. The loss of these neurons leads to the hallmark symptoms of Parkinson's, such as tremors, bradykinesia, and rigidity.

16. **Solution: a)**

Statement 1 is correct: State Election Commissions (SECs) are responsible for delimiting constituencies for local elections every five years to ensure fair representation in Panchayats and Municipalities.

Statement 2 is incorrect: The SEC's delimitation powers do not extend to state

assembly constituencies; this falls under the jurisdiction of the Election Commission of India.

Statement 3 is incorrect: SECs rely on the voter lists for electoral purposes, but not directly for delimitation.

17. **Solution: c)**

Gross Fixed Capital Formation

(**GFCF**) refers to the total value of a country's investments in **fixed assets** such as infrastructure, machinery, equipment, and buildings over a specified period. It is a key indicator of economic health, reflecting the level of investment in capital goods that are used to produce goods and services in the future.

18. **Solution: b)**

For the **GNSS-based Electronic Toll Collection (ETC) system**:

- **Statement 1** is correct: It uses satellite technology to determine the vehicle's location and calculate toll charges based on the distance traveled.
- **Statement 2** is incorrect: The GNSS-based system does not require vehicles to pass through physical toll booths, as toll collection is automated.
- **Statement 3** is correct: The GNSS-based system allows for seamless, non-stop toll collection, reducing traffic delays and enhancing efficiency.

19. **Solution: b)**

Gross Fixed Capital Formation

(**GFCF**) includes investments in **fixed assets** like buildings, machinery, and equipment, which are used for long-term productive purposes and contribute to economic growth by enhancing productive capacity. GFCF does not include inventories such as raw materials or finished goods.

20. **Solution: b)**

For the “VishanuYuddh Abhyas” mock drill:

- **Statement 1** is correct: The drill is conducted under the National One Health Mission (NOHM).
- **Statement 2** is incorrect: The focus is on assessing preparedness for zoonotic outbreaks, not specifically about reducing dependency on foreign experts.
- **Statement 3** is correct: The mock drill includes real-time virus identification and outbreak control measures to evaluate the effectiveness of the response.

21. **Solution: d)**

Statement 1 is correct as Lothal was one of the southernmost cities of the Indus Valley Civilization, located in present-day Gujarat. **Statement 2** is also correct since Lothal had an advanced drainage system, similar to other major Harappan cities.

Statement 3 is incorrect because the Sabarmati River now flows around 20 km away from the site, not directly next to it.

22. **Solution: c)**

Brunei contributes to India’s Indo-Pacific vision by being located in a strategic area of the **South China Sea**, a crucial maritime zone for trade and energy transportation.

Securing freedom of navigation in this region is vital for India to maintain open sea lanes and counter China's territorial claims.

Brunei's cooperation within the ASEAN framework supports India's larger Indo-Pacific strategy, ensuring a rules-based order and providing a diplomatic platform for engagement with Southeast Asia.

23. **Solution: c)**

OpenAI's Project Strawberry focuses on developing an advanced AI model with enhanced capabilities in **math, programming, and reasoning**. This project

aims to bring AI closer to achieving Artificial General Intelligence (AGI), enabling it to perform complex tasks such as autonomous internet research, problem-solving, and data generation, potentially leading to breakthroughs in fields like scientific research and personalized education.

24. **Solution: c)**

The **Krishi Nivesh Portal** was launched to enhance transparency in agricultural investments by providing easy access to information on government schemes and policies related to agriculture. It aims to simplify the process for investors and stakeholders in the agricultural sector.

25. **Solution: b)**

Statement 2 is correct as the **India Semiconductor Mission (ISM)** has full administrative and financial powers to drive the semiconductor ecosystem, focusing on various aspects, including manufacturing, packaging, and design.

Statement 1 is incorrect because ISM operates under the Digital India Corporation, not directly under the Ministry of Science and Technology.

Statement 3 is incorrect because ISM focuses on both manufacturing and design, not exclusively on design and research.

26. **Solution: b)**

Statement 2 is correct: Lothal’s dockyard is one of the oldest known examples of water transport infrastructure.

Statement 3 is also correct: Lothal primarily handled goods traded with the western region of Mesopotamia, including beads, gems, and ornaments.

Statement 1 is incorrect: The dockyard was connected to the **Sabarmati River**, not the Indus River.

27. **Solution: a)**

Statement 1 is correct: **Project Strawberry** aims to bring AI capabilities

closer to Artificial General Intelligence (AGI) by enhancing cognitive abilities like reasoning and problem-solving.

Statement 2 is incorrect: While it may involve internet research, integrating real-time access to internet searches is not its primary focus.

Statement 3 is also incorrect: The project does not primarily focus on creative writing skills but rather on enhancing AI's cognitive capabilities.

28. **Solution: d)**

Statements 1 and 3 are correct:

- **Statement 1:** GLOFs (Glacial Lake Outburst Floods) occur due to the failure of unstable natural dams made of ice or loose sediment around glacial lakes.
- **Statement 3:** GLOFs can cause downstream flooding and are triggered by natural events such as ice avalanches or earthquakes.

Statement 2 is incorrect: Glacial lakes are primarily formed from meltwater from glaciers, not rainfall.

29. **Solution: a)**

Statements 1 and 2 are correct:

- **Statement 1:** Brunei is a major oil and gas exporter, aligning with India's energy security needs.
- **Statement 2:** Brunei is a key player in ASEAN, which is central to India's 'Act East' Policy.

Statement 3 is incorrect: Brunei is not directly involved in India's Quad alliance with the U.S., Japan, and Australia.

30. **Solution: b)**

Statements 1 and 2 are correct:

The **AgriSURE – Agri Fund for Start-Ups & Rural Enterprises** primarily focuses on areas like farm mechanization and technology-driven start-ups and aims to increase youth participation in agriculture.

Statement 3 is incorrect: It does not specifically fund research projects related to agricultural biotechnology.

31. **Solution: d)**

The **Munich Agreement**, signed in 1938, allowed **Nazi Germany to annex the Sudetenland**, a border region of Czechoslovakia with a significant ethnic German population. The agreement was reached between Germany, France, Great Britain, and Italy, without the direct involvement of Czechoslovakia. It was an attempt by British Prime Minister Neville Chamberlain and others to appease Adolf Hitler and maintain peace. However, Hitler violated the agreement within six months by invading the rest of Czechoslovakia, demonstrating the failure of the appeasement policy.

32. **Solution: c)**

Gastrointestinal symptoms, such as constipation, are not considered motor symptoms of **Parkinson's disease**. Motor symptoms of Parkinson's include tremors, bradykinesia (slowness of movement), rigidity, postural instability, and dystonia (involuntary muscle contractions). Gastrointestinal symptoms are classified as non-motor symptoms but can significantly affect the quality of life.

33. **Solution: d)**

“Operation Bhediya” was initiated to capture wolves responsible for attacks in Bahraich, Uttar Pradesh. The operation has successfully captured four wolves so far, but the ongoing efforts continue as some wolves remain uncaptured, leaving the local community in fear.

34. **Solution: a)**

The **Indian Gray Wolf** is listed in **Schedule I** of the Wildlife (Protection) Act of 1972, granting it the highest level of protection under Indian law. However, it is listed

under **Appendix I** of CITES, not Appendix III, and is classified as "Least Concern" by the IUCN Red List, not "Critically Endangered."

35. **Solution: c)**

Sudan shares a coastline with the **Red Sea** to the east. This strategic position provides Sudan with significant maritime access and is crucial for its trade and economic relationships with neighboring countries.

36. **Solution: b)**

The **Ramon Magsaysay Award** was established in 1957 to honor the third president of the Philippines, **Ramon Magsaysay**. It is not limited to Southeast Asian citizens; it recognizes individuals from all over Asia who have shown exceptional dedication to public service. The award includes a certificate, a medallion, and a cash prize, making statement 2 correct.

37. **Solution: a)**

- **IUCN Least Concern** refers to species not currently at significant risk (**A-3**).
- **CITES Appendix I** regulates international trade in endangered species (**B-1**).
- **Wildlife (Protection) Act, Schedule I** provides the highest protection to species in India (**C-2**).
- **Endangered** refers to species at high risk of extinction (**D-4**).

38. **Solution: b)**

Statement 1 is incorrect: Mitochondria are dynamic structures, constantly changing in size, number, and location within the cell to meet energy demands.

Statements 2 and 3 are correct: Imbalances in mitochondrial dynamics, such as excessive fragmentation, are linked to neurodegenerative diseases like Parkinson's. Mitochondrial dysfunction, including impaired energy production, is a key factor in neuronal death in Parkinson's disease.

39. **Solution: b)**

Statements 1 and 2 are correct:

- **Statement 1:** Article 21 of the Indian Constitution recognizes the right to clean water as part of the right to life.
- **Statement 2:** The Model Groundwater Bills empower state boards to manage water resources effectively by creating state-specific laws.

Statement 3 is incorrect: The **Polluter Pays Principle** mandates that the polluter, not the government, bears the cost of cleaning up groundwater contamination.

40. **Solution: c)**

The **Asiatic cheetah** is distinguished by its 'red eyes', unlike the African cheetah, which is generally larger and has a darker coat. The Asiatic cheetah is critically endangered, with only about 40-50 individuals surviving in Iran, and it has unique physical characteristics that set it apart from its African counterpart.

41. **Solution: c)**

The criterion of having a **Composite score of 60 or above** in specific performance indicators is required for **Navratna status**, not **Maharatna status**. For Maharatna status, the criteria include an average annual turnover exceeding ₹25,000 crore, being listed on the Indian stock exchange with prescribed public shareholding, and having a significant global presence or international operations, among other financial requirements.

42. **Solution: a)**

- **Statement 1** is incorrect: The 'Aravalli' engine is being developed for both the **Indian Multi-Role Helicopter (IMRH)** and the **Deck-Based Multi-Role**

Helicopter (DBMRH), not exclusively for the IMRH.

- **Statement 2** is correct: The partnership between **HAL and SAFHAL Helicopter Engines Pvt. Ltd.** is part of India's strategy to enhance indigenous aerospace capabilities and reduce dependency on foreign suppliers.
- **Statement 3** is incorrect: The collaboration is with **SAFHAL Helicopter Engines Pvt. Ltd.**, and there is no mention of Russian companies being involved in this project.

43. **Solution: b)**

- **Statement 1** is correct: **Project NAMAN** is an initiative by the Indian Army aimed at streamlining pension processes for Defence Pensioners and Veterans.
- **Statement 3** is also correct: The **Common Service Centres (CSCs)** under Project NAMAN are managed by veterans or their families, ensuring community involvement in service delivery.
- **Statement 2** is incorrect: Although the project relies on the **SPARSH digital pension system**, there is private sector involvement, particularly through HDFC Bank, which supports the project by offering SPARSH-enabled pension services.

44. **Solution: c)**

- **Statement 1** is correct: **Cyclones** are intense systems of air circulation around a low-pressure center, often characterized by violent storms and adverse weather conditions.
- **Statement 2** is incorrect: Tropical cyclones specifically form in tropical regions, not in mid-latitude regions, which are instead associated with Extra-Tropical cyclones.
- **Statement 3** is correct: Cyclones rotate counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere due to the Coriolis effect.

45. **Solution: b)**

- **Statement 1** is correct: The **Dispute Resolution Committees (DRCs)** under the e-Dispute Resolution Scheme (e-DRS) 2022 have the authority to modify orders and reduce or waive penalties.
- **Statement 3** is correct: The scheme is available across 18 regional jurisdictions in India.
- **Statement 2** is incorrect: The DRCs are required to issue their decisions within **six months** from the end of the month in which the application is admitted, not nine months.

46. **Solution: d)**

The **Colombo Security Conclave (CSC)** was established with the initial signatories being **India, Sri Lanka, Maldives, and Mauritius**. These countries share strategic interests in the Indian Ocean region and have come together under this framework to address common security challenges, particularly in areas like maritime safety, counter-terrorism, and cyber security.

47. **Solution: a)**

- **Statement 1** is incorrect: While the 'Navratna' status grants CPSEs increased financial and operational autonomy, it does not mean complete autonomy without government oversight.
- **Statement 2** is correct: The '**Navratna**' status is awarded based on the performance and profitability of the CPSE, among other criteria.
- **Statement 3** is incorrect: With the recent additions, the total number of CPSEs holding 'Navratna' status has reached 25, not 100.

48. **Solution: b)**

- **Statement 1** is correct: The **Colombo Security Conclave (CSC)** aims to address transnational threats by enhancing

Wisdom Leads to Success

cooperation in areas such as maritime safety, counter-terrorism, and cyber security among member nations.

- **Statement 2** is correct: The CSC Secretariat was established in Colombo, Sri Lanka, to reinforce regional security cooperation.
- **Statement 3** is incorrect: The CSC is primarily a security-focused initiative and does not include provisions for economic integration or the establishment of a free trade area among its members.

49. **Solution: a)**

- **Statement 1** is correct: The removal of older, more polluting vehicles will directly contribute to reducing air pollution.
- **Statement 2** is incorrect: The policy does not mandate the use of electric vehicles as replacements; it encourages the adoption of

newer, more efficient vehicles, which could include but are not limited to electric vehicles.

- **Statement 3** is correct: The policy promotes the recycling of materials from scrapped vehicles, which helps in reducing the consumption of non-renewable resources.

50. **Solution: d)**

The **Central Ground Water Authority (CGWA)** was established under the **Environment (Protection) Act, 1986**.

The CGWA is responsible for regulating and managing groundwater resources in India, including developing policies and programs to ensure the sustainable use and conservation of groundwater. The authority also monitors and controls the exploitation of groundwater, especially in areas where it is overexploited or critically polluted.

