

Solutions

DATE : 3rd Feb- 9th Feb

1) Answer: (b) Indian Ocean Region

Explanation:

- **Correct: SARAT Version 2** is an advanced **Search and Rescue Aid Tool (SARAT)** designed to enhance **search-and-rescue (SAR) operations** in the **Indian Ocean Region (IOR)**.
- **Incorrect:** While it may be applicable in **India's Exclusive Economic Zone (EEZ)**, its **primary focus** is the **larger Indian Ocean Region** beyond just India's waters.
- **Correct:** Developed under the **Ministry of Earth Sciences (MoES)** and implemented by **INCOIS**, it improves **search accuracy, response times, and rescue efficiency** for agencies like the **Indian Coast Guard (ICG)**.
- **Key Features:**
 - **Accurate Search Areas:** Uses the **Last Known Position (LKP)** to compute precise search regions.
 - **Exportable Data:** Provides **digital search area formats** that can be used in rescue planning.
 - **Enhanced Visualization:** Incorporates **particle trajectory visualization, color-coded search zones, and LKP markers** to improve search clarity.
 - **Future Enhancements:** Plans to integrate **high-frequency radar data and advanced ocean modeling** to improve accuracy.

2) Answer: (c) Only three

Explanation:

- **Correct:** The **Donkey Route** avoids **direct flights** to the US, relying on **multiple transit countries** to evade immigration authorities. Illegal immigrants take **detours through countries** where visa enforcement is weak, such as **Central and South American nations**.
- **Incorrect:** Though some may attempt illegal entry into **Canada or Europe**, the **primary destination** for most using this route is the **United States**.
- **Correct:** **Fake documents, including counterfeit visas, forged immigration stamps, and fabricated travel records,** are commonly used in this network to make illegal immigrants appear legitimate.
- **Correct:** Security agencies have expressed concerns over its role in **illegal migration, human trafficking, drug smuggling, and terrorism risks**. It has led to **increased border security measures** worldwide.

3) Answer: (d) None

Explanation:

- **Incorrect:** The **longest tributary of the Ganga** is **Yamuna (1,376 km)**, not Gomti. The **Gomti River is much shorter** and does not hold this distinction.
- **Incorrect:** The **Gomti River originates from Gomat Taal (Fulhaar Jheel) in Pilibhit, Uttar Pradesh,** and not in **Nepal's Terai region**.
- **Incorrect:** The **Gomti is a perennial river,** meaning it **flows year-round**. An **ephemeral river** is one that **flows only during monsoon months,** which is not the case with Gomti.
- **Environmental Concerns:**
 - **Pollution:** Urban and industrial waste from **Lucknow and Jaunpur** have severely affected water quality.

- **Encroachment:** Uncontrolled construction along the riverbanks has reduced its flow.

4) Answer: (a) Longer range and higher precision guided rockets

Explanation:

- **Correct:** The **latest variants of Pinaka** include:
 - **Pinaka Mk-II (75 km range)** with **improved accuracy**.
 - **Pinaka Mk-III (planned 120-300 km range)** with **precision-guided rockets**.
- **Incorrect:** **Pinaka does not integrate with BrahMos,** as BrahMos is a **supersonic cruise missile,** whereas Pinaka is a **multi-barrel rocket launcher**.
- **Incorrect:** **Pinaka is a conventional artillery system** and is **not designed for nuclear warheads**.
- **Incorrect:** **Stealth technology** is generally used for aircraft, ships, and missiles, not for **ground-based rocket launchers**.

5) Answer: (c) 1 and 3 only

Explanation:

- **Correct:** **Geo-Economic Fragmentation (GEF)** refers to **disruptions in global trade and investment flows** caused by **geopolitical conflicts, economic protectionism, and shifting supply chains**.
- **Incorrect:** The **Economic Survey does not recommend reducing reliance on foreign investments**. Instead, it emphasizes a **balanced approach** that includes **both domestic and international economic strategies**.
- **Correct:** It suggests **strengthening domestic economic growth levers** such as **manufacturing, innovation, and self-reliance** to mitigate **external risks**.

6) Answer: (a) 1 only

Explanation:

- **Correct:** **Tamil Nadu has the highest number of Ramsar sites** in India, overtaking **Uttar Pradesh**.
- **Incorrect:** Not all **Ramsar sites are within national parks or wildlife sanctuaries**. Some, like **Loktak Lake (Manipur) and Sunderbans Wetlands (West Bengal),** are independent wetland ecosystems.

7) Answer: (b) 1, 2, and 3 only

Explanation:

- **Correct:** **CITES (Convention on International Trade in Endangered Species)** regulates **wildlife trade** related to big cats.
- **Correct:** **IUCN (International Union for Conservation of Nature)** provides **conservation status assessments** and data on endangered species.
- **Correct:** **TRAFFIC (Trade Records Analysis of Flora and Fauna in Commerce)** monitors **illegal wildlife trade** and promotes conservation.
- **Incorrect:** **IMF (International Monetary Fund)** focuses on **economic policies** and has **no role in wildlife conservation**.

8) Answer: (a) It outcompetes native fish species and disrupts aquatic ecosystems

Explanation:

- **Correct: Gambusia affinis (mosquito fish)** is invasive because it:
 - **Preys on native fish, amphibians, and invertebrates**, leading to **biodiversity loss**.
 - **Competes aggressively** with native species for food and habitat.
- **Incorrect:** It does not cause **water quality issues by consuming plankton**.
- **Incorrect:** It **reproduces very rapidly**, leading to overpopulation.
- **Incorrect:** It **disrupts predator-prey balance**, rather than maintaining it.

9) Answer: (d) 1, 2, 3, and 4

Explanation:

- **Correct: High molecular weight and crystallinity** make plastics harder to break down.
- **Correct: Microbial enzymes are not evolved to degrade synthetic polymers**, making decomposition slow.
- **Correct: Plastics contain stabilizers and flame retardants**, preventing breakdown.
- **Correct: Anaerobic conditions (low oxygen) slow microbial metabolism**, further reducing plastic degradation rates.

10) Answer: (b) Guppies are less invasive and do not harm native fish populations as severely as *Gambusia affinis*

Explanation:

- **Correct: Guppies are less aggressive and invasive** compared to *Gambusia affinis*, which often **outcompetes native fish** and disrupts ecosystems.
- **Incorrect:** While both **consume mosquito larvae**, *Gambusia* is **more efficient** but causes **greater ecological harm**.
- **Incorrect: Gambusia is more resilient to pollution and salinity** than guppies.
- **Incorrect: Guppies have a longer lifespan** than *Gambusia*, making them a more sustainable mosquito control option

11) Answer: (b) Only two

Explanation:

- **Correct:** The **Monetary Policy Committee (MPC)** was introduced through **amendments to the RBI Act, 1934, under the Finance Act, 2016**. It is a **statutory body** responsible for setting the **repo rate** to control inflation.
- **Correct:** The MPC is a **six-member committee**, with **three members from the RBI (including the Governor)** and **three external members nominated by the Government of India**.
- **Incorrect:** The **MPC's decisions are binding on the RBI** and are not just **recommendatory**. The RBI Governor does not have the authority to **overrule MPC's decisions** but has a **casting vote in case of a tie**.

12) Answer: (c) Statement-I is correct, but Statement-II is incorrect

Explanation:

- **Correct: Sacred Groves play a vital role in biodiversity conservation and groundwater recharge**. These **community-protected forest patches** help **regulate water cycles**, prevent **soil erosion**, and preserve **traditional knowledge and species diversity**.
- **Incorrect:** The **Supreme Court has not mandated that all Sacred Groves be classified as community reserves**. Sacred Groves have traditionally been managed by **local communities**, and their classification under government control would require legal amendments under the **Wildlife Protection Act, 1972**.

13) Answer: (d) Wealth creation at the top eventually benefits lower-income groups through job creation and investments

Explanation:

- **Incorrect: Trickle-Up Economics** suggests economic benefits should be directed **towards lower-income groups** to stimulate demand and growth.
- **Incorrect: Government subsidies** for lower-income groups are not a part of the **Trickle-Down model** but rather align with **Trickle-Up policies**.
- **Incorrect: Redistributive policies** focus on **direct wealth transfer** rather than assuming benefits will reach lower-income groups through investments.
- **Correct: Trickle-Down Economics** suggests that **lower tax rates and incentives for businesses and the wealthy** will lead to **economic growth**, increased **investment**, and **job creation**, ultimately benefiting all sections of society.

14) Answer: (b) Tso Lhamo Lake in Sikkim

Explanation:

- **Incorrect:** The **Zemu Glacier** is a major glacier in **Sikkim** but **not the source** of the Teesta River.
- **Correct:** The **Teesta River originates from Tso Lhamo Lake** in **North Sikkim**, fed by the **Pahurni and Khangse glaciers**.
- **Incorrect:** The **Kangchenjunga Massif** does not **directly feed** the Teesta River.
- **Incorrect:** The **Brahmagiri Hills** are the **source of the Kaveri River**, not the Teesta.

15) Answer: (d) To promote financial inclusion by assessing the creditworthiness of rural women and Self-Help Groups (SHGs)

Explanation:

- **Incorrect:** The system **does not regulate interest rates** charged by informal moneylenders but helps **formal financial institutions assess rural creditworthiness**.
- **Incorrect:** The initiative does not focus on **small-scale industries** but rather on **rural financial inclusion**.
- **Incorrect:** The system **does not replace traditional banking** but complements it by **integrating rural borrowers into the formal financial system**.
- **Correct:** The **Grameen Credit Score** aims to evaluate the **financial health** of rural women and **Self-Help Groups (SHGs)**, improving their **access to formal credit** and **reducing dependence on informal moneylenders**.

16) Answer: (c) As a defensive fortification against European rivals and local rulers

Explanation:

- **Incorrect:** Fort William was **not a royal residence** for the **British Governor of Bengal**.
- **Incorrect: British trading activities** were managed through **factories and settlements**, not Fort William.
- **Correct: Fort William was built to defend against European rivals (French, Dutch) and Indian rulers (Siraj-ud-Daulah)**. The British fortified it after the **Battle of Plassey (1757)**.
- **Incorrect:** It was **never a penal colony** but rather a **military base** and later **headquarters for the Indian Army's Eastern Command**.

17) Answer: (a) Only one

Explanation:

- **Incorrect:** NavIC is a regional navigation system, not a global one like GPS, GLONASS, or Galileo. It primarily serves India and surrounding regions up to 1,500 km.
- **Incorrect:** While NavIC is independent, it is still susceptible to potential interference or jamming, just like other navigation systems.
- **Correct:** NavIC satellites are placed in geostationary and geosynchronous orbits, optimizing coverage over India and neighboring countries.

18) Answer: (a) Only one

Explanation:

- **Incorrect:** The MPC's primary role is to set interest rates for inflation control, not regulate money supply directly.
- **Incorrect:** The current inflation target is $4\% \pm 2\%$, not $3\% \pm 1\%$.
- **Correct:** The MPC was introduced to enhance transparency and accountability in monetary policymaking.

19) Answer: (c) Only three

Explanation:

- **Correct:** The PMSR Act, 2013 completely bans manual scavenging across India.
- **Correct:** Employers who engage manual scavengers in insanitary latrines are liable for punishment, including fines and imprisonment.
- **Correct:** The Act provides rehabilitation measures such as financial assistance, skill training, and alternative employment for former manual scavengers.
- **Incorrect:** While the Act promotes mechanized cleaning, it does not mandate its exclusive use. Some manual interventions are still reported.

20) Answer: (c) All three

Explanation:

- **Correct:** Waqf properties cannot be sold, gifted, or mortgaged without prior approval from the State Waqf Board.
- **Correct:** The Waqf Tribunal has exclusive jurisdiction over Waqf-related disputes, preventing interference from civil courts.
- **Correct:** The Act provides for the digitization of Waqf records, helping prevent illegal encroachments and unauthorized sales.

21) Answer: (b) Only two

Explanation:

- **Correct:** USAID has played a significant role in India's healthcare sector, supporting programs for HIV/AIDS prevention, tuberculosis control, maternal and child health, and sanitation initiatives.
- **Incorrect:** USAID does not directly fund large-scale infrastructure projects like highways and railways. These are generally financed through bilateral agreements, World Bank, or ADB (Asian Development Bank).
- **Correct:** USAID has supported India's clean energy transition, funding renewable energy projects, carbon reduction efforts, and climate resilience initiatives.

22) Answer: (d) Its history of massive volcanic eruptions causing caldera collapse

Explanation:

- **Incorrect:** Santorini was formed by volcanic activity, not a meteorite impact crater.

- **Incorrect:** It is located in the Aegean Sea, not the Pacific Ocean, so it was not the site of a major Pacific tsunami.
- **Incorrect:** The longest active fault line in Europe is the North Anatolian Fault, not in Santorini.
- **Correct:** Santorini was shaped by a massive volcanic eruption around 1600 BCE, which caused caldera collapse, leading to the formation of its unique landscape.

23) Answer: (b) Only two

Explanation:

- **Correct:** A high Debt-to-GDP ratio increases the risk of credit rating downgrades, making borrowing costlier.
- **Correct:** Excessive government borrowing can lead to inflation if the central bank prints more money or deficit spending increases demand.
- **Incorrect:** A rising Debt-to-GDP ratio reduces investor confidence, leading to capital outflows, not inflows.

24) Answer: (b) The increase in overall consumption of a resource despite efficiency gains

Explanation:

- **Incorrect:** Jevons Paradox suggests efficiency leads to higher consumption, not a decrease.
- **Correct:** When a resource becomes more efficient and cheaper, demand increases, leading to higher consumption.
- **Incorrect:** It does not directly relate resource depletion to economic growth.
- **Incorrect:** The paradox is not related to price elasticity of demand.

25) Answer: (a) To promote higher education in rural and cooperative management

Explanation:

- **Correct:** The university focuses on cooperative management and rural development.
- **Incorrect:** It does not specialize in agricultural technologies.
- **Incorrect:** It is not focused on urban entrepreneurship.
- **Incorrect:** It does not facilitate foreign investment in cooperatives.

26) Answer: (a) Only one

Explanation:

- **Incorrect:** The Lion Capital of Ashoka is from Sarnath, not Sanchi.
- **Correct:** The emblem shows three visible lions, while the fourth is hidden.
- **Incorrect:** "Satyameva Jayate" is from the Mundaka Upanishad, not the Bhagavad Gita.

27) Answer: (d) An economic policy that boosts one country's economy at the expense of other nations

Explanation:

- **Incorrect:** It is not focused on environmental concerns.
- **Incorrect:** It does not aim to eliminate tariffs but rather increase them.
- **Incorrect:** It does not promote free trade, but rather economic nationalism.
- **Correct:** Beggar-Thy-Neighbour policies use tariffs, currency devaluation, and subsidies to gain advantage, often harming other economies.

28) Answer: (c) 1-b, 2-a, 3-c, 4-d

Explanation:

- **Siachen Glacier:** Karakoram Range (b)
- **Gangotri Glacier:** Uttarakhand, India (a)
- **Lambert Glacier:** Antarctica (c)
- **Perito Moreno Glacier:** Argentina, South America (d)

29) Answer: (a) Only one

Explanation:

- **Incorrect:** USAID does not oversee peacekeeping operations, which are under the **United Nations (UN)**.
- **Incorrect:** USAID provides aid based on need, not only to U.S. allies.
- **Correct:** USAID supports food security, disaster relief, and humanitarian programs in developing countries.

30) Answer: (c) Only three

Explanation:

- **Correct:** High tariffs on imports protect domestic industries at the expense of others.
- **Correct:** Currency devaluation makes exports cheaper, harming competitors.
- **Incorrect:** Foreign Direct Investment (FDI) benefits both the investor and recipient country.
- **Correct:** Export subsidies give an unfair advantage to domestic industries.

31) Answer: (c) 1 and 3

Explanation:

- **Correct:** The **White Nile River** is the primary water source for South Sudan, flowing through the country and supporting agriculture and settlements.
- **Incorrect:** South Sudan does not have a desert climate. It has a tropical and savannah climate, experiencing a wet season (May to October) and a dry season (November to April).
- **Correct:** The **Sudd**, one of the world's largest wetlands, is located in central South Sudan and plays a crucial role in flood regulation and biodiversity conservation.

32) Answer: (a) Predation on native amphibians and small fish leading to biodiversity loss

Explanation:

- **Correct:** *Gambusia affinis* was introduced for mosquito control, but it preys on native fish, amphibians, and aquatic invertebrates, leading to biodiversity loss.
- **Incorrect:** It does not significantly affect aquatic vegetation.
- **Incorrect:** It does not increase mosquito populations, but rather competes with other mosquito-eating species, which can reduce overall efficiency in controlling mosquito larvae.
- **Incorrect:** It does not directly affect plankton populations in marine ecosystems.

33) Answer: (c) 1, 2, and 3 only

Explanation:

- **Correct:** The **International Big Cat Alliance (IBCA)** covers:
 - Puma
 - Cheetah
 - Jaguar
- **Incorrect:** Lynx is not covered under IBCA.

34) Answer: (a) Atpadi Taluka, Maharashtra

Explanation:

- **Correct:** **Atpadi Taluka (Maharashtra)** is a key region for ELS cotton cultivation. Other major regions include **Coimbatore (Tamil Nadu)**, **Karnataka**, and **parts of Madhya Pradesh**.
- **Incorrect:** **Vidarbha (Maharashtra)** is known for medium and short-staple cotton, not ELS cotton.
- **Incorrect:** **Bhatinda (Punjab)** mainly cultivates medium-staple cotton.
- **Incorrect:** **Guntur (Andhra Pradesh)** produces short-staple cotton, mainly for domestic use.

35) Answer: (d) *Pseudomonas putida*

Explanation:

- **Correct:** *Pseudomonas putida* has shown the ability to degrade plastics, particularly **polyurethane (PU)** and some **microplastics**.
- **Incorrect:** *Ideonella sakaiensis* specializes in **PET degradation** but is not effective in marine environments.
- **Incorrect:** *Vibrio natriegens* is known for its fast growth rate, but its **plastic degradation potential is still being studied**.
- **Incorrect:** *Bacillus subtilis* is used in **biodegradation research**, but it is not a primary microplastic degrader.

36) Answer: (c) 1, 2, and 4

Explanation:

- **Correct:** Floating exchange rates are determined by supply and demand in the foreign exchange market.
- **Correct:** Fixed exchange rates are maintained by central banks through direct intervention, such as buying or selling foreign reserves.
- **Incorrect:** Currency depreciation makes imports expensive and exports cheaper, not the other way around.
- **Correct:** A strong domestic currency can increase the trade deficit by making exports more expensive and imports cheaper, reducing competitiveness of domestic industries.

37) Answer: (d) None

Explanation:

- **Incorrect:** **Fentanyl** is a synthetic opioid, not a naturally occurring compound found in medicinal plants.
- **Incorrect:** The **fentanyl crisis** is not limited to the US but also affects **Canada, Mexico, and parts of Europe**.
- **Incorrect:** **Fentanyl** has legitimate medical uses, such as pain management and anesthesia, apart from its illicit drug trade.

38) Answer: (b) 2 and 3 only

Explanation:

- **Incorrect:** India imports most of its ELS cotton from **Egypt and the US**, not China and Australia.
- **Correct:** India's lack of pest-resistant ELS varieties contributes to low domestic production, leading to import dependency.
- **Correct:** The **Government of India** has launched a five-year mission (2025-26 Union Budget) to boost domestic ELS cotton production.

39) Answer: (b) Conducting genetic modification programs to create disease-resistant big cat species

Explanation:

- **Correct:** IBCA does not focus on genetic modification programs. Instead, it supports:
 - Anti-poaching measures
 - Habitat restoration
 - Ecosystem conservation

o Data-sharing for conservation efforts

- **Incorrect:** IBCA actively works on wildlife trade prevention, habitat conservation, and global research collaboration.

40) Answer: (b) Only two

Explanation:

- **Correct:** India's ethanol production is primarily based on sugarcane feedstocks, particularly molasses, a by-product of sugar production.
- **Correct:** Ethanol blending with petrol reduces carbon monoxide (CO) emissions due to its oxygenated nature, improving combustion efficiency.
- **Incorrect:** Ethanol does not significantly improve engine efficiency. In fact, it has lower energy content than petrol, which can slightly reduce mileage.

41) Answer: (a) Enhancing agricultural productivity in low-yield districts

Explanation:

- **Correct:** The Dhan-Dhaanya Krishi Yojana focuses on boosting agricultural productivity in 100 low-yield districts by improving crop diversification, post-harvest storage, irrigation, and credit access.
- **Incorrect:** It does not focus exclusively on organic farming, nor does it introduce direct cash transfers or expand MSP coverage.

42) Answer: (a) It has a maximum effective range of 12 kilometers, making it superior to most existing MANPADS.

Explanation:

- **Incorrect:** The effective range of VSHORADS is 250 meters to 6 km, not 12 km. Most MANPADS range between 3 to 8 km, making VSHORADS comparable but not superior in range.
- **Correct:** Developed by DRDO's Research Centre Imarat (RCI), Hyderabad, it targets low-altitude aerial threats like drones, helicopters, and fighter jets.
- **Correct:** Equipped with an adaptive proximity fuze for precise target destruction.

43) Answer: (d) This reform applies only to life insurance companies and does not cover general or health insurance.

Explanation:

- **Incorrect:** The FDI increase to 100% applies to all insurance segments—life, general, and health insurance.
- **Correct:** IRDAI regulates the insurance sector and ensures consumer protection.
- **Correct:** The reform is expected to boost insurance penetration, which declined from 4% in 2022-23 to 3.7% in 2023-24.
- **Correct:** Foreign-owned insurers must reinvest collected premiums within India, preventing excessive capital outflows.

44) Answer: (b) The island has a permanent human population, mainly consisting of research personnel and military staff.

Explanation:

- **Incorrect:** South Georgia Island is uninhabited and has no permanent human population. However, scientists and administrative staff are seasonally present at King Edward Point.
- **Correct:** Located in the South Atlantic Ocean, it is a British Overseas Territory.

- **Correct:** It is a crucial breeding ground for seabirds, penguins, and seals.
- **Correct:** The island has a subantarctic climate, with cold temperatures and strong winds.

45) Answer: (c) Conduct a comprehensive survey, documentation, and conservation of India's manuscript heritage

Explanation:

- **Incorrect:** The mission does not focus exclusively on Sanskrit and Pali manuscripts. It covers multiple languages, including Tamil, Telugu, Persian, and Arabic.
- **Correct:** The initiative aims to digitize, conserve, and document ancient manuscripts in libraries, museums, and private collections.
- **Incorrect:** It does not replace the National Mission for Manuscripts (NMM) but expands its role with increased funding (₹60 crore from ₹3.5 crore).

46) Answer: (b) Only two

Explanation:

- **Incorrect:** India is the second-largest producer of cardamom, after Guatemala, which dominates global exports.
- **Correct:** Idukki district in Kerala contributes over 50% of India's small cardamom production.
- **Correct:** The newly discovered species Elettaria tulipifera and Elettaria facifera are native to the Western Ghats.

47) Answer: (c) None

Explanation:

- **Incorrect:** The scheme does not focus solely on cash crops but promotes crop diversification and sustainable agriculture.
- **Incorrect:** It does not replace existing agricultural schemes but integrates them for better implementation.
- **Incorrect:** The scheme does not provide financial assistance to large agribusinesses; its focus is on small farmers, rural women, and landless workers.

48) Answer: (d) None

Explanation:

- **Incorrect:** Cardamom requires a tropical rainforest climate, making it unsuitable for Rajasthan and Punjab.
- **Incorrect:** The Spices Board of India regulates cardamom exports and sets quality standards.
- **Incorrect:** Guatemala is the world's largest producer and exporter of cardamom and does not import from India.

49) Answer: (c) Only three

Explanation:

- **Incorrect:** The mission does not focus exclusively on Sanskrit manuscripts but includes multiple languages such as Tamil, Telugu, Persian, Arabic, and Pali.
- **Correct:** It includes advanced conservation techniques to preserve fragile manuscripts.
- **Correct:** It utilizes AI-based text recognition and translation technologies to make manuscripts more accessible.
- **Correct:** It promotes collaboration with private collectors, academic institutions, and museums.

50) Answer: (a) 1 and 3 only

Explanation:

An Institute for Civil Services

- **Incorrect:** Insurance penetration is not measured by the number of insured individuals, but by the ratio of total insurance premiums to GDP.
- **Correct:** Increasing FDI to 100% is expected to attract foreign insurers, bringing advanced technology and better products.
- **Incorrect:** The FDI increase is conditional, requiring foreign companies to reinvest collected premiums within India and comply with IRDAI regulations.



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