

Solutions

DATE : 26Aug- 01Sept

1) Recent Expansion of the Agricultural Infrastructure Fund (AIF)

- **Correct Option: b) The AIF now provides financial support specifically for Farmers' Producers Organisations (FPOs).**
- **Explanation:** The recent expansion of the **Agricultural Infrastructure Fund (AIF)** by the Union Cabinet aims to enhance the financial security and creditworthiness of **Farmers' Producers Organisations (FPOs)**. This makes the scheme more inclusive and attractive for FPOs, which are vital agricultural collectives in India. The expansion does not focus exclusively on large agribusinesses, nor has the total budget increased to ₹2 lakh crore (it remains ₹1 lakh crore), and the fund continues to support a wide range of agricultural infrastructure projects, not just a few. Thus, option **b** is correct.

2) Quasars

- **Correct Option: b) Only two**
- **Explanation:**
 - **Statement 1:** Correct. Quasars are the **extremely luminous cores** of distant galaxies.
 - **Statement 2:** Correct. Quasars are powered by **supermassive black holes** at their centers, which accrete matter and produce immense energy.
 - **Statement 3:** Incorrect. The light emitted by quasars is due to the **intense gravitational energy** released as matter is accreted by the supermassive black hole, not due to **nuclear fusion** in their outer layers. Hence, only two statements are correct.

3) Chandipura Virus (CHPV) Outbreak in India

- **Correct Option: d) The Chandipura virus is known to cause acute encephalitis syndrome (AES).**
- **Explanation:** The **Chandipura virus** has been linked to causing **Acute Encephalitis Syndrome (AES)**, particularly affecting children. The current outbreak is not in the southern states but primarily in **Gujarat** and some cases in **Rajasthan**. The **World Health Organization (WHO)** has not recommended any travel or trade restrictions, and there is **no vaccine** available for the virus currently. Hence, option **d** is correct.

4) Northern Bald Ibis

- **Correct Option: a) 1 and 2 only**
- **Explanation:**
 - **Statement 1:** Correct. The **northern bald ibis** was once extinct in Europe due to extensive **hunting**.
 - **Statement 2:** Correct. The species has been revived in certain areas through **breeding and rewilding efforts**.
 - **Statement 3:** Incorrect. The northern bald ibis is currently classified as "**Endangered**" by the IUCN, not "Critically Endangered." Hence, only statements 1 and 2 are correct.

5) Function of Parabolic Concentrator in Solar Paraboloid Technology

- **Correct Option: d) It focuses and concentrates sunlight onto a small area to generate high temperatures.**
- **Explanation:** A **parabolic concentrator** is designed to **focus sunlight** onto a small area, known as the receiver, to generate **very high temperatures**. This intense heat can be used for various applications, including electricity generation or providing heat for industrial processes. It does not

directly convert sunlight into electricity like photovoltaic cells, nor does it store or diffuse sunlight.

6) Central Financial Assistance (CFA) for Hydroelectric Projects in the North Eastern Region (NER)

- **Correct Option: c) The CFA is only available for projects that are deemed viable.**
- **Explanation:** The **Central Financial Assistance (CFA)** approved by the Union Cabinet supports the equity participation of North-Eastern state governments in **viable hydroelectric projects**. It does not cover 100% of the equity; it only covers up to 24% with a cap of ₹750 crore per project and is exclusive to projects in the **North Eastern Region (NER)**.

7) Pacific Policing Initiative (PPI)

- **Correct Option: a) 1 and 2 only**
- **Explanation:**
 - **Statement 1:** Correct. The **Pacific Policing Initiative (PPI)** includes the establishment of a central police development hub in **Brisbane, Australia**.
 - **Statement 2:** Correct. The initiative is primarily **funded by Australia** but driven by the **Pacific Island countries**.
 - **Statement 3:** Incorrect. The PPI represents a shift towards a **Pacific-led approach** to security, contrasting with past initiatives that were dominated by external powers. Thus, only statements 1 and 2 are correct.

8) BioE3 Policy

- **Correct Option: b) Only two**
- **Explanation:**
 - **Statement 1:** Incorrect. The **BioE3 Policy** is not limited to healthcare and pharmaceuticals; it also includes sectors like **agriculture, environmental conservation, and industrial biotechnology**.
 - **Statement 2:** Correct. The policy includes provisions for **capacity building** through internships and fellowships.
 - **Statement 3:** Correct. **Marine and space research** are among the sectors covered under the policy. Hence, only two statements are correct.

9) Pension Scheme Replacement for Government Employees

- **Correct Option: a) National Pension Scheme (NPS)**
- **Explanation:** The **National Pension Scheme (NPS)** replaced the Old Pension Scheme (OPS) for government employees who joined after January 1, 2004. The NPS is a **contributory, market-linked scheme** without any guaranteed pension amount, unlike the OPS.

10) Agricultural Infrastructure Fund (AIF)

- **Correct Option: c) The AIF is part of the broader Atmanirbhar Bharat initiative.**
- **Explanation:** The **Agricultural Infrastructure Fund (AIF)** is part of the **Atmanirbhar Bharat** campaign, aimed at promoting self-reliance in India. It is not limited to post-harvest infrastructure, provides loans and credit facilities (not just grants), and includes financing for **Farmers' Producers Organisations (FPOs)**.

11) National Medical Register (NMR) Portal

- **Correct Option: c) Registered allopathic (MBBS) doctors in India**
- **Explanation:** The **National Medical Register (NMR)** is a comprehensive digital database for all registered allopathic (MBBS) doctors in India, mandated under Section 31 of the **National Medical Commission (NMC) Act, 2019**. Managed by the **Ethics & Medical Registration Board (EMRB)**, it includes the names, addresses, and qualifications of licensed medical

practitioners. The NMR aims to enhance the **digital healthcare ecosystem** by ensuring transparent access to qualified medical professionals.

12) Purpose of Bharat Biotech's Hillchol (BBV131) Vaccine

- **Correct Option: c) To combat cholera**
- **Explanation: Bharat Biotech's Hillchol (BBV131)** is an oral cholera vaccine developed in partnership with **Hilleman Labs**. It addresses the global shortage of **Oral Cholera Vaccines (OCVs)** and aims to prevent cholera, a severe diarrheal disease caused by the bacterium **Vibrio cholerae**. This vaccine is a significant contribution to global health, particularly in regions where cholera is endemic.

13) Technology Used in Needle-Free Intranasal COVID-19 Booster Vaccine

- **Correct Option: d) Codon deoptimization technology**
- **Explanation: Indian Immunologicals Ltd (IIL)**, in collaboration with **Griffith University**, developed a needle-free intranasal COVID-19 booster vaccine using **codon deoptimization technology**. This involves modifying the genetic code of the virus by increasing the frequency of underrepresented codon pairs, making the virus less virulent while still effective in stimulating an immune response.

14) Ban on Fixed-Dose Combination (FDC) Drugs

- **Correct Option: b) Only two**
- **Explanation:**
 - **Statement 1:** Incorrect. While **Fixed-Dose Combinations (FDCs)** are combinations of two or more drugs in a single dose, they are not always used to enhance therapeutic effects; some may lack therapeutic benefits.
 - **Statement 2:** Correct. The ban on 156 FDC drugs by the Indian government was due to concerns over their irrational use and lack of therapeutic benefit.
 - **Statement 3:** Correct. Overuse of FDCs, especially those with antibiotics, can contribute to **antibiotic resistance**, a major global health issue.

15) Unified Lending Interface (ULI)

- **Correct Option: a) 1 and 3 only**
- **Explanation:**
 - **Statement 1:** Correct. The **Unified Lending Interface (ULI)** uses advanced technologies like APIs and secure digital platforms.
 - **Statement 2:** Incorrect. ULI does not offer government-subsidized interest rates; it focuses on simplifying and standardizing lending processes.
 - **Statement 3:** Correct. ULI aims to integrate and standardize lending processes across different financial institutions.

16) Solar Paraboloid Technology

- **Correct Option: b) Only two**
- **Explanation:**
 - **Statement 1:** Incorrect. Solar Paraboloid Technology is not a type of photovoltaic technology; it is a form of **Concentrating Solar Power (CSP)**.
 - **Statement 2:** Correct. It uses parabolic mirrors to concentrate sunlight onto a receiver, generating high temperatures.

- **Statement 3:** Correct. This technology offers higher efficiency than traditional photovoltaic systems.

17) **Perpetual Bonds Issued by Canara Bank**

- **Correct Option: d) They are India's first Additional Tier I perpetual bonds issued after recent regulatory changes.**
- **Explanation: Canara Bank** issued India's first **Additional Tier I perpetual bonds** following recent rule changes, attracting strong investor interest. These bonds do not have a fixed maturity date, and investors receive interest indefinitely.

18) **National Medical Register (NMR) under the National Medical Commission (NMC) Act, 2019**

- **Correct Option: d) 1 and 3 only**
- **Explanation:**
 - **Statement 1:** Correct. The NMR is managed by the **Ethics & Medical Registration Board (EMRB)** of the **National Medical Commission (NMC)**.
 - **Statement 2:** Incorrect. The NMR does not require doctors to submit annual reports.
 - **Statement 3:** Correct. The NMR aims to enhance the digital healthcare ecosystem and ensure transparent access to quality medical professionals.

19) **Perpetual Bonds**

- **Correct Option: b) 2 only**
- **Explanation:**
 - **Statement 1:** Incorrect. Perpetual bonds are considered **debt instruments**, not equity.
 - **Statement 2:** Correct. They provide interest payments indefinitely, with no fixed maturity date.
 - **Statement 3:** Incorrect. Perpetual bonds do not have a fixed period for principal repayment; they exist indefinitely.

20) **Cholera**

- **Correct Option: a) 1 and 2 only**
- **Explanation:**
 - **Statement 1:** Correct. Cholera is a bacterial disease causing rapid fluid loss and severe dehydration.
 - **Statement 2:** Correct. Cholera is primarily transmitted through **contaminated water or food**.
 - **Statement 3:** Incorrect. **Rehydration therapy** is the primary treatment for cholera, not antibiotics.

21) **New India Literacy Programme (NILP)**

- **Correct Option: c) 3 only**
- **Explanation:**
 - **Statement 1:** Incorrect. Literacy under the **New India Literacy Programme (NILP)** is not limited to just the ability to read and write. It includes additional skills such as **computing with comprehension, digital literacy, and financial literacy**.
 - **Statement 2:** Incorrect. Full literacy under NILP is defined as achieving **95% literacy** in a State/UT, which is considered equivalent to 100%.
 - **Statement 3:** Correct. The NILP has expanded the definition of literacy to include critical skills like **digital and financial literacy**. Therefore, the correct answer is **(c) 3 only**.

22) Vegetation in Hollongapar Gibbon Sanctuary

- **Correct Option: c) The sanctuary's vegetation includes a variety of evergreen shrubs and herbs in the lower canopy.**
- **Explanation:** The **Hollongapar Gibbon Sanctuary** is known for its diverse vegetation structure. The **upper canopy** is dominated by **hollong trees**, while the **middle canopy** is characterized by **nahar trees**. The **lower canopy** contains various **evergreen shrubs and herbs**. Therefore, the correct answer is **(c)**.

23) Factors Contributing to Mass Wasting in Tibet's Sedongpu Gully

- **Correct Option: d) Warming and seismic activity**
- **Explanation:** **Mass wasting** in **Tibet's Sedongpu Gully** is primarily due to **warming temperatures** and **seismic activity**. Since 2017, these factors have led to frequent landslides, adding debris to the **Yarlung Tsangpo River**, which can cause river choking and potential flash floods downstream. Options like **overgrazing**, **mining**, and **deforestation** are not the primary contributors in this context. Thus, the correct answer is **(d)**.

24) Role of State Governments in the Creation of New Districts in India

- **Correct Option: b) State governments have the authority to create, alter, or abolish districts through executive orders or laws passed in the State Assembly.**
- **Explanation:** In India, the creation, alteration, or abolition of districts is within the purview of **state governments**. They can achieve this through **executive orders** or by passing **laws** in the **State Assembly**. No approval from **Parliament**, involvement of the **President of India**, or constitutional amendment is required. Therefore, the correct answer is **(b)**.

25) New India Literacy Programme (NILP)

- **Correct Option: a) 1 and 2 only**
- **Explanation:**
 - **Statement 1:** Correct. NILP is a **centrally sponsored scheme** aimed at educating non-literate individuals aged **15 and above**.
 - **Statement 2:** Correct. The program targets **females** and **backward states** to reduce literacy gaps.
 - **Statement 3:** Incorrect. The NILP does not focus primarily on **vocational training** for youth in urban areas. Thus, the correct answer is **(a) 1 and 2 only**.

26) Types of Mass Wasting

- **Correct Option: a) Landslides are characterized by the sudden and rapid movement of large amounts of soil and rock.**
- **Explanation:** **Landslides** involve the rapid movement of large amounts of **soil, rock, and debris** down a slope, triggered by factors such as rainfall, earthquakes, or construction activities. The other options incorrectly describe the nature of different types of mass wasting. Therefore, the correct answer is **(a)**.

27) Leptospirosis

- **Correct Option: b) Leptospirosis is a zoonotic bacterial disease transmitted to humans through contaminated water, especially during the monsoons.**
- **Explanation:** **Leptospirosis** is a **bacterial zoonotic disease** primarily transmitted through contact with water contaminated by the urine of infected animals, especially rodents. It is common

in **monsoon seasons** due to water contamination. The disease is not viral, does not spread easily through human contact, and is not a fungal infection. Thus, the correct answer is **(b)**.

28) Procedure for Renaming Districts in India

- **Correct Option: b) The renaming process requires clearance from the Central Government after a proposal is submitted by the state.**
- **Explanation:** The process of renaming districts involves the **state government** submitting a proposal to the **Central Government** for approval. The Central Government seeks clearance from various departments before granting approval. This does not require a constitutional amendment or approval from the Supreme Court. Hence, the correct answer is **(b)**.

29) Preventive Measures for Leptospirosis

- **Correct Option: a) Filling holes in walls to prevent rats from entering homes.**
- **Explanation:** **Leptospirosis** is primarily spread through contact with **rodents**. Preventing rats from entering homes by filling holes is an effective preventive measure. Options like wearing masks, using hand sanitizers, or consuming probiotics are not specifically targeted at preventing leptospirosis. Therefore, the correct answer is **(a)**.

30) Conservation Status of Hoolock Gibbons

- **Correct Option: d) The western hoolock gibbon is classified as Endangered, and the eastern hoolock gibbon is classified as Vulnerable by the IUCN.**
- **Explanation:** The **western hoolock gibbon** is classified as **Endangered**, and the **eastern hoolock gibbon** is classified as **Vulnerable** by the **IUCN Red List**. Both species are protected under **Schedule I** of the Indian Wildlife Protection Act, 1972, providing them with the highest level of protection. Other options incorrectly describe their conservation status or legal protection. Thus, the correct answer is **(d)**.

31) Key Condition for an Offence under the SC/ST (Prevention of Atrocities) Act, 1989

- **Correct Option: c) The insult or intimidation must be based on the victim's caste.**
- **Explanation:** The **Supreme Court** ruled that for an act of insult or intimidation to qualify as an offence under the **SC/ST (Prevention of Atrocities) Act, 1989**, the insult or intimidation must be **based on the victim's caste**. Not every insult or act of intimidation qualifies; the caste element must be the root cause of the offence for it to be considered under this Act.

32) Organism Exhibiting Sonoluminescence

- **Correct Option: a) Pistol shrimp**
- **Explanation:** **Pistol shrimp** (family Alpheidae) exhibit **Sonoluminescence** by snapping their claws to create a high-speed water jet, which forms a bubble. As the bubble collapses, it produces a loud sound and a flash of light, demonstrating Sonoluminescence.

33) Environmental Impacts of Lithium Mining in the Atacama Desert

- **Correct Option: c) Contamination of ecosystems and water scarcity**
- **Explanation:** **Lithium mining** in the **Atacama Desert** has been linked to significant environmental issues, particularly **contamination of local ecosystems** and the exacerbation of **water scarcity**. The desert is already one of the driest places on Earth, and lithium extraction further depletes its limited water resources, affecting local biodiversity.

34) Organization Piloting the Great Nicobar Island (GNI) Project

- **Correct Option: a) NITI Aayog**
 - **Explanation:** The **Great Nicobar Island (GNI) Project**, a ₹72,000-crore initiative, is being piloted by **NITI Aayog**. This project focuses on the holistic development of the island, including infrastructure to enhance its strategic and economic importance.
- 35) **Objective of the Pradhan Mantri Janjati Adivasi Nyaya Maha AbhiyaN (PM-JANMAN) Campaign**
- **Correct Option: a) To achieve 100% saturation of government schemes in Particularly Vulnerable Tribal Group (PVTG) areas.**
 - **Explanation:** The **PM-JANMAN** campaign aims to ensure **100% saturation of government schemes in PVTG areas**. It targets the most marginalized tribal communities to provide them with essential government services, aiming to bridge developmental gaps.
- 36) **Primary Cause of Sonoluminescence Flash of Light**
- **Correct Option: d) Rapid collapse of a bubble caused by sound waves**
 - **Explanation:** **Sonoluminescence** occurs when a small bubble in a liquid rapidly collapses due to powerful **sound waves**, creating extremely high temperatures and resulting in a flash of light.
- 37) **Components of the Great Nicobar Island (GNI) Project**
- **Correct Option: d) A mega shopping mall complex**
 - **Explanation:** The **Great Nicobar Island (GNI) Project** does not include the construction of a **mega shopping mall complex**. The project focuses on infrastructure such as a **transshipment port, a dual-use military-civil international airport, a power plant, and a township**.
- 38) **Offences Punished under the SC/ST (Prevention of Atrocities) Act, 1989**
- **Correct Option: b) Manual scavenging**
 - **Explanation:** The **SC/ST (Prevention of Atrocities) Act, 1989** specifically punishes offences like **manual scavenging**, which is considered a severe form of discrimination against SC/ST communities.
- 39) **National Park near the Great Nicobar Island (GNI) Project Area**
- **Correct Option: b) Campbell Bay National Park**
 - **Explanation:** The area designated for development in the **Great Nicobar Island (GNI) Project** is near **Campbell Bay National Park**, requiring careful planning to balance development with conservation.
- 40) **Activities NOT Part of the IEC Campaign under PM-JANMAN**
- **Correct Option: d) Development of urban housing projects for tribals**
 - **Explanation:** The **IEC campaign under PM-JANMAN** includes activities such as distributing entitlements, organizing health camps, and conducting awareness campaigns. The development of **urban housing projects** is not part of this campaign, which is mainly focused on rural and remote tribal areas.
- 41) **Significance of National Space Day, Celebrated on August 23 in India**
- **Correct Option: a) It commemorates the success of the Chandrayaan-3 mission and India's achievements in space exploration.**

- **Explanation: National Space Day** on August 23 was designated to honor the **successful Chandrayaan-3 mission**, which marked a historic lunar landing, making India the fourth country to land on the Moon and the first to land in the Moon's southern polar region. This day underscores India's advancements in space exploration and its contributions to global space science.
- 42) **Botswana's Geographical Position**
- **Correct Option: c) Botswana is a landlocked country in Southern Africa bordered by South Africa, Namibia, and Zimbabwe, and connected to Zambia via the Kazungula Bridge.**
 - **Explanation: Botswana** is a landlocked country located in **Southern Africa**. It is bordered by **South Africa** to the south and southeast, **Namibia** to the west and north, **Zimbabwe** to the northeast, and connected to **Zambia** by the **Kazungula Bridge** over the Zambezi River. The other options incorrectly describe Botswana's location and borders.
- 43) **All India Initiative on Creative Economy (AIICE)**
- **Correct Option: b) 2 only**
 - **Explanation:**
 - **Statement 1:** Incorrect. **AIICE** focuses on the creative economy but does not primarily emphasize IT-based solutions for artisans. It supports traditional sectors like **handlooms, crafts**, and other creative industries.
 - **Statement 2:** Correct. The creative economy includes sectors such as **film, music, design, and fashion**, which are based on creativity and culture.
 - **Statement 3:** Incorrect. The initiative affects a significant portion of India's workforce (about **8%**), not just those in the tech industry.
- 44) **Key Feature of India's First Reusable Hybrid Rocket, RHUMI-1**
- **Correct Option: d) It is designed to advance research on climate change and atmospheric conditions.**
 - **Explanation: RHUMI-1**, developed by Space Zone India, is India's first **reusable hybrid rocket**. It is intended to collect data on environmental factors, such as **cosmic radiation, UV radiation, and air quality**, to contribute to research on climate change and atmospheric conditions.
- 45) **Function of mRNA in mRNA Vaccines**
- **Correct Option: c) mRNA serves as a blueprint for cells to produce viral proteins that trigger an immune response.**
 - **Explanation: In mRNA vaccines**, mRNA provides instructions for cells to produce specific viral proteins, such as the spike protein of the coronavirus. These proteins then prompt the immune system to produce antibodies and activate T cells, conferring immunity without integrating into the host genome.
- 46) **Features of the Okavango Delta in Botswana**
- **Correct Option: a) It is a seasonal floodplain that becomes a lush animal habitat during floods.**
 - **Explanation: The Okavango Delta** is a large inland delta that experiences seasonal flooding, transforming it into a lush habitat teeming with wildlife. It is a critical area for biodiversity conservation in Botswana.
- 47) **Primary Mission Objective of the Tanager-1 Satellite**

- **Correct Option: d) To track methane and carbon dioxide emissions using imaging spectrometer technology.**
- **Explanation:** The **Tanager-1** satellite, launched by NASA, aims to track **methane and carbon dioxide emissions** using advanced **imaging spectrometer technology**. This mission helps address global warming by targeting potent greenhouse gases like methane.

48) Statements about mRNA Vaccines

- **Correct Option: b) 2 and 3 only**
- **Explanation:**
 - **Statement 1:** Incorrect. **mRNA vaccines** do not incorporate viral mRNA into the host DNA.
 - **Statement 2:** Correct. The **spike protein** produced from mRNA translation is recognized by the immune system, leading to the production of antibodies and activation of T cells.
 - **Statement 3:** Correct. Antibodies produced after vaccination bind to the **spike protein**, preventing the virus from entering cells.

49) Statements about Blueberries

- **Correct Option: b) 2 and 3 only**
- **Explanation:**
 - **Statement 1:** Incorrect. Blueberries grow in **temperate climates** and prefer **acidic, well-drained soils**.
 - **Statement 2:** Correct. **Anthocyanins** in blueberries help protect cells from oxidative stress, classifying them as a superfood.
 - **Statement 3:** Correct. Regular consumption of blueberries is linked to improved **heart health, brain function**, and reduced cancer risk.

50) Correct Statement Regarding Methane

- **Correct Option: d) Methane is a potent greenhouse gas that contributes significantly to global warming and forms ground-level ozone, which poses health risks.**
- **Explanation:** Methane is a highly potent greenhouse gas, contributing significantly to global warming. It also forms **ground-level ozone**, a pollutant linked to respiratory issues and premature deaths, highlighting its environmental and health impacts.