

Solutions

DATE : 16 – 22nd Sept

1) Solution: d) PM Janjati Adivasi Nyaya Maha Abhiyan (2023)

Explanation:

The Pradhan Mantri Janjatiya Unnat Gram Abhiyan builds on the success of the PM Janjati Adivasi Nyaya Maha Abhiyan (2023) and expands its approach toward holistic development of tribal communities across India through a cooperative federal framework.

2) Solution: b)

Explanation:

Statement 3 is incorrect.

The NCoE for AVGC-XR focuses on offering specialized training and fostering intellectual property (IP) creation in fields like Animation, Visual Effects, Gaming, and Extended Reality. Its primary focus is on enhancing India's soft power and economic growth through digital content creation, not on promoting cultural exchanges.

3) Solution: b) Pulses, oilseeds, and copra

Explanation:

The Price Support Scheme (PSS) under PM-AASHA focuses on procuring pulses, oilseeds, and copra through central nodal agencies like NAFED and FCI. The government procures 25% of the marketable surplus and bears the procurement costs and losses.

4) Solution: c) Rapeseed and Mustard

Explanation:

Rapeseed and Mustard are listed under Rabi crops, not Kharif crops. The Kharif crop list includes crops such as paddy, cotton, and groundnuts, for which the MSP is announced by the government.

5) Solution: a) 1 and 2 only

Explanation:

The Bio-RIDE scheme merges two existing biotechnology programs to foster innovation and bio-entrepreneurship, while also promoting sustainable practices through a circular bioeconomy. The scheme's primary focus is on cutting-edge research, sustainable biomanufacturing, and developing biotechnology solutions in fields like healthcare and agriculture, not on large-scale industrial infrastructure.

6) Solution: a) Only one

Explanation:

Statement 3 is incorrect.

The mission focuses on addressing social infrastructure gaps, including education, healthcare, and connectivity. Its key goals include providing pucca houses, enhancing mobile and road connectivity, and promoting economic empowerment through skills training. Industrial development is not a primary goal; rather, it focuses on sustainable and inclusive development for tribal communities.

7) Solution: d) 1, 2, and 3

Explanation:

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The Bharatiya Antariksh Station (BAS-1) is part of an expanded Gaganyaan program. It will focus on scientific research in microgravity environments and technology development. ISRO will collaborate with industry and academia to develop technologies for long-duration human space missions. The Union Cabinet also approved related missions such as Chandrayaan-4 and a Venus Orbiter mission.

8) Solution: d) 1 and 2 only

Explanation:

Pheromones are chemical substances used by animals, including humans and insects, to communicate with other members of the same species, facilitating behaviors like mate attraction, marking territory, and signaling danger. Pheromones are not involved in digestion or nutrient absorption, which are physiological processes unrelated to pheromones.

9) Solution: b) Only two

Explanation:

Statement 3 is incorrect.

The Bio-RIDE scheme supports cutting-edge biotechnology research in areas like synthetic biology and bioenergy. It promotes bio-entrepreneurship through funding, incubation, and mentorship programs. However, the focus is on innovative biomanufacturing rather than traditional manufacturing techniques.

10) Solution: d) 1 and 4 only

Explanation:

Under the Price Support Scheme (PSS), central nodal agencies like NAFED and FCI procure pulses, oilseeds, and copra, and the government bears the procurement costs, and any losses incurred. The

Price Deficiency Payment Scheme (PDPS) compensates for the price difference between the mandi prices and MSP for oilseeds without physical procurement. The Private Procurement & Stockist Scheme (PPPS) is focused on oilseeds, not rice and wheat.

11) Solution: c) Indian Order of Merit

Explanation:

The 21 soldiers who fought in the Battle of Saragarhi were posthumously awarded the Indian Order of Merit, the highest gallantry award for Indian soldiers at that time, equivalent to today's Param Vir Chakra. Queen Victoria recognized their bravery for defending the communication post between Fort Lockhart and Fort Gulistan against overwhelming odds.

12) Solution: a) Being one of the world's hottest chillies

Explanation:

The Naga king chilli, also known as raja mircha, is famous for being one of the hottest chillies in the world, with a Scoville Heat Unit (SHU) exceeding 1 million. It holds significant cultural and economic value in Nagaland and has been granted a Geographical Indication (GI) tag.

13) Solution: b) Only two

Explanation:

The Ministry of Petroleum aims to blend 15% methanol into diesel to reduce India's dependence on imported crude oil (Statement 1 is correct). This blending can also help reduce fuel costs for consumers (Statement 2 is correct). However, methanol is not exclusively produced from CO₂ captured from agricultural sources—it can be produced from CO₂ captured from various

industrial sectors, including thermal power plants (Statement 3 is incorrect).

14) Solution: a) 1 and 3 only

Explanation:

Kleptoparasitism involves birds like frigatebirds and skuas forcing other birds to regurgitate prey, thereby stealing their food (Statement 1 is correct). This behavior is not commonly observed in terrestrial birds like sparrows and finches (Statement 2 is incorrect). This behavior can help spread diseases like avian influenza (Statement 3 is correct).

15) Solution:d) Gogo Formation

Explanation:

The new well-preserved coelacanth fossil was discovered in Australia's Gogo Formation, which dates to the Devonian period. This discovery has led scientists to reassess the evolutionary influence of Earth's geology, revealing that tectonic plate activity, rather than ocean conditions, played a significant role in the emergence of new species.

16) Solution: b) Advancing carbon capture and utilisation technologies

Explanation:

India's first CO₂-to-methanol pilot plant in Pune is focused on advancing carbon capture and utilisation (CCU) technologies. This initiative aims to convert CO₂ emissions into methanol, contributing to India's climate goals by reducing carbon emissions and supporting industrial decarbonisation, especially in the coal-based thermal power sector.

17) Solution: b) It will follow a horseshoe-shaped path around Earth

Explanation:

Asteroid 2024 PT5 is temporarily captured by Earth's gravity, following a horseshoe-shaped path, rather than completing a full orbit. Such occurrences, known as "mini moons," provide valuable opportunities for scientists to study near-Earth objects. 2024 PT5 was discovered by NASA's ATLAS program, and it hails from the Arjuna asteroid belt.

18) Solution: d) None of the above

Explanation:

All the statements are incorrect. The Battle of Saragarhi was fought between the 36th Sikh regiment under British command and Afridi and Orakzai tribal militants, not Mughals (Statement 1). The battle lasted approximately seven hours, not 7 days (Statement 2). It took place in the North-West Frontier Province (now in Pakistan), not the eastern frontier (Statement 3).

19) Solution: a) 2 only

Explanation:

CCU technologies aim to capture CO₂ and convert it into useful chemicals like methanol rather than storing it permanently underground (Statement 1 is incorrect). The pilot plant in Pune focuses on this conversion process (Statement 2 is correct). The coal-based thermal power sector contributes to around 30% of India's carbon emissions, making it a key target for CCU technologies (Statement 3 is incorrect).

20) Solution: c) Law Commission

Explanation:

The Law Commission of India, in its 170th and 79th reports, recommended the idea of simultaneous elections to avoid frequent disruptions in governance and reduce the financial burden on the state exchequer. The proposal of ONOE aims to ensure that governance is not hampered by continuous election cycles and frequent implementation of the Model Code of Conduct.

21) Solution: b) Only two

Explanation:

Statement 1 is incorrect as the Karam tree is deciduous, not evergreen. Statement 2 is correct, as the tree symbolizes vitality and strength in the Karam festival. Statement 3 is also correct, as it is native to the Indian subcontinent, particularly found in India, Nepal, and Bangladesh.

22) Solution: a) Seaweed cultivation

Explanation:

The ICAR-Central Marine Fisheries Research Institute (CMFRI) was designated as a Centre of Excellence for seaweed cultivation by the Department of Fisheries. The focus is on improving cultivation techniques, creating a seed bank for indigenous species, and assessing the environmental impacts of seaweed cultivation.

23) Solution: a) It improves syntax and semantics in language models while reducing energy consumption.

Explanation:

Quantum Natural Language Processing (QNLP) enhances large language models (LLMs) by addressing limitations like high energy consumption and syntax issues. QNLP requires

fewer parameters and improves understanding of both syntax and semantics, while consuming less energy.

24) Solution: c) Pagers work by receiving short messages via radio waves.

Explanation:

Pagers, or “beepers,” are portable communication devices that receive short messages via radio frequency. They do not actively transmit signals like mobile phones, making them harder to track.

25) Solution: b) Santhal

Explanation:

The Karam festival is celebrated by tribal groups like the Munda, Oraon, Ho, and Santhal across regions such as Jharkhand, West Bengal, Bihar, and Odisha. The festival honors the Karam Devta, symbolizing strength, youth, and vitality.

26) Solution: c) 2 only

Explanation:

Quantum computers use qubits, which can exist in a superposition, representing both 0 and 1 simultaneously (Statement 2 is correct). Quantum computers do not use classical bits, and they rely on quantum algorithms, not classical ones.

27) Solution: d) Quantum Blockchain Systems

Explanation:

The National Quantum Mission (NQM) focuses on Quantum Computing, Quantum Communication, Quantum Sensing and Metrology, and Quantum Materials and Devices. There is no mention of Quantum Blockchain Systems as one of the major themes.

28) Solution: b) Only two

Explanation:

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Statement 1 is correct as the mission includes Quantum Communication with secure satellite-based communication using Quantum Key Distribution (QKD). Statement 2 is also correct, involving agencies like the Department of Science & Technology, DRDO, and ISRO. Statement 3 is incorrect because the mission aims to make India among the top six leading nations, not the top three.

29) Solution: d) None of the above

Explanation:

All statements are incorrect. Seaweed primarily grows in marine ecosystems, has significant industrial applications, and plays an important role in marine ecosystems by providing habitat, oxygen, and acting as a carbon sink.

30) Solution: c) 3 only

Explanation:

Statement 1 is incorrect because the Battery Waste Management (BWM) Rules, 2022 were issued by the Ministry of Environment, Forest, and Climate Change (MoEFCC). Statement 2 is incorrect because under Extended Producer Responsibility (EPR), producers are responsible for the entire lifecycle of batteries. Statement 3 is correct as environmental compensation is imposed for failing to meet recycling targets.

31) Solution: b) Only two

Explanation:

West Bengal produces over 70% of India's total jute production, making statement 1 correct. Bihar, not Andhra Pradesh, is the second-largest producer of jute, so statement 2 is incorrect. Assam and Bihar are indeed among the top five jute-producing states, making statement 3 correct.

32) Solution: d) None of the above

Explanation:

Amplitude Modulation (AM) changes the wave height (amplitude) to encode signals, while Frequency Modulation (FM) alters the wave's frequency. FM offers better sound quality than AM but has a shorter range. AM is not used for Wi-Fi and digital transmissions, which rely more on Phase Modulation (PM). Hence, none of the statements are correct.

33) Solution: a) Africa

Explanation:

The Global Cybersecurity Index (GCI) 2024 highlights that Africa showed the most significant advancement in cybersecurity. This reflects the region's increasing efforts to strengthen its cybersecurity infrastructure across various legal, technical, and organizational pillars.

34) Solution: d) None of the above

Explanation:

All statements are incorrect. The "Integrated Ocean Energy Atlas" includes resources like solar, wind, waves, tides, ocean currents, and thermal gradients (statement 1 is incorrect). It was launched by the Ministry of Earth Sciences, not the Ministry of Renewable Energy (statement 2 is incorrect). The atlas provides energy resource estimates but not real-time data (statement 3 is incorrect).

35) Solution: c) Scientific and technical glossaries

Explanation:

The "Shabd" website, launched by the Commission for Scientific and Technical Terminology (CSTT) in 2024, focuses on scientific and technical glossaries in Indian languages. The website hosts over 18 million headwords across various disciplines,

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promoting technical education in Indian languages.

36) Solution: a) A Particularly Vulnerable Tribal Group (PVTG)

Explanation:

The Irula tribe, classified as a Particularly Vulnerable Tribal Group (PVTG), resides in Tamil Nadu. They are known for their expertise in snake-catching and extracting snake venom, which is vital for producing anti-snake venom in India.

37) Solution: b) Only two

Explanation:

The WHO prequalified the MVA-BN vaccine as the first approved vaccine to combat mpox, making statement 1 correct. The vaccine can be stored at 2-8°C for up to eight weeks, making statement 3 correct. However, the vaccine shows 82% effectiveness with two doses, not 99%, making statement 2 incorrect.

38) Solution: c) 1 and 3

Explanation:

Mokshagundam Visvesvaraya developed automatic gates to regulate the flow of water in reservoirs and contributed to solving water supply issues in Sukkur, now in Pakistan. However, he did not design the Bhakra Nangal Dam in Punjab, making statement 2 incorrect.

39) Solution: d) Neither 1 nor 2

Explanation:

Both statements are correct. Typhoon Yagi is considered Asia's strongest cyclone of 2024, and India launched Operation Sadbhav to provide humanitarian assistance to countries affected by the cyclone, including Laos, Myanmar, and Vietnam.

40) Solution: b) 2 only

Explanation:

The Global AI Ethics and Governance Observatory promotes ethical AI governance for policymakers, academics, and private enterprises, making statement 2 correct. It does not focus solely on the private sector (statement 1 is incorrect) and provides resources for AI development, making statement 3 incorrect.

41) Solution: b) Only two

Explanation:

The Cellular Jail was built during British rule to house political prisoners and is known as Kala Pani due to its isolation, making statements 1 and 2 correct. However, it was used primarily during the late 19th and early 20th centuries, not the early 19th century, making statement 3 incorrect.

42) Solution: d) None of the above

Explanation:

The INDUS-X Summit involves both economic and defense-related technologies, making statement 1 incorrect. The MoU was signed between iDEX and the U.S. Department of Defense, not Stanford University, making statement 2 incorrect. The Zorawar Light Tank is designed for use in both desert and high-altitude areas, making statement 3 incorrect.

43) Solution: a) 1 only

Explanation:

The Satavahana dynasty is credited with adding the toranas (gateways) around the Great Stupa, making statement 1 correct. However, the Satavahana kings did not construct new stupas at Sanchi, and the carvings on the toranas feature

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scenes of the Buddha's life, not royal conquests, making statements 2 and 3 incorrect.

44) Solution: b) Only two

Explanation:

Nidhi companies are regulated by the Ministry of Corporate Affairs, not the RBI, making statement 1 incorrect. They do promote borrowing and lending among their members, and they require a minimum capital of ₹10 lakh for formation, making statements 2 and 3 correct.

45) Solution: a) Human brain

Explanation:

Neuromorphic computing, developed by IISc Bengaluru, mimics the functioning of the human brain, enabling computers to process information in ways like biological neurons.

46) Solution: d) It offers non-contributory pensions to the elderly, widows, and disabled individuals

Explanation:

The National Social Assistance Programme (NSAP) offers non-contributory pensions to the elderly, widows, and disabled individuals. It is not a contributory pension scheme, nor is it administered by the Ministry of Health and Family Welfare.

47) Solution: a) 1 and 2 only

Explanation:

Green hydrogen is produced using renewable energy sources like solar and wind power and

emits significantly lower carbon emissions compared to grey hydrogen, making statements 1 and 2 correct. The Bureau of Energy Efficiency (BEE) is under the Ministry of Power, not the Ministry of New & Renewable Energy, making statement 3 incorrect.

48) Solution: c) 1 only

Explanation:

The Integrated Program for Older Persons (IPOP) aims to enhance the quality of life of senior citizens by providing food, shelter, and medical care, making statement 1 correct. It is not specifically designed for elderly individuals in urban areas, nor does it focus on entertainment opportunities, making statements 2 and 3 incorrect.

49) Solution: a) 1 and 2 only

Explanation:

The Rashtriya Vayoshree Yojana provides aids and assistive devices to elderly individuals below the poverty line, and the scheme is funded through the Senior Citizens' Welfare Fund, making statements 1 and 2 correct. It is not a contributory scheme, making statement 3 incorrect.

50) Solution: d) GAIL

Explanation:

GAIL started India's first green hydrogen blending operation in the Piped Natural Gas (PNG) network, marking a significant step towards sustainable energy solutions.