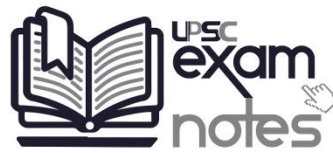


UPSC EXAM NOTES



UPSC EXAM NOTES
2023 GENERAL STUDIES PAPER 1 (SET
A) QUESTIONS & EXPLANATIONS

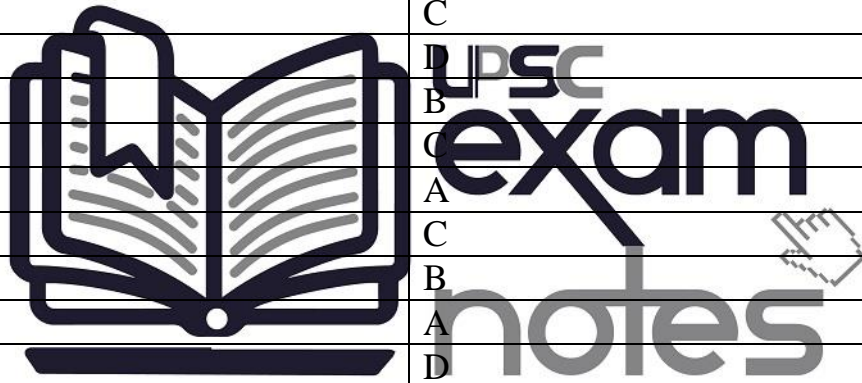
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UPSC PRELIMS- 2023 SET-A ANSWER KEY

| QUESTION NUMBER | ANSWER |
|-----------------|--------|
| 1 | A |
| 2 | B |
| 3 | B |
| 4 | A |
| 5 | D |
| 6 | D |
| 7 | C |
| 8 | A |
| 9 | D |
| 10 | D |
| 11 | A |
| 12 | C |
| 13 | A |
| 14 | B |
| 15 | C |
| 16 | D |
| 17 | B |
| 18 | B |
| 19 | B |
| 20 | D |
| 21 | B |
| 22 | A |
| 23 | B |
| 24 | A |
| 25 | C |
| 26 | B |
| 27 | C |
| 28 | C |
| 29 | B |
| 30 | B |
| 31 | C |
| 32 | A |
| 33 | C |
| 34 | B |
| 35 | A |

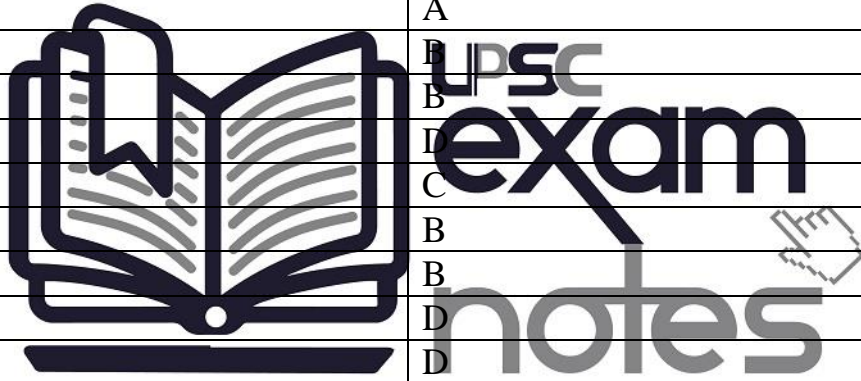
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| | |
|----|---|
| 36 | D |
| 37 | A |
| 38 | C |
| 39 | B |
| 40 | C |
| 41 | A |
| 42 | B |
| 43 | B |
| 44 | D |
| 45 | D |
| 46 | B |
| 47 | B |
| 48 | A |
| 49 | C |
| 50 | D |
| 51 | B |
| 52 | C |
| 53 | A |
| 54 | C |
| 55 | B |
| 56 | A |
| 57 | D |
| 58 | D |
| 59 | C |
| 60 | C |
| 61 | A |
| 62 | C |
| 63 | D |
| 64 | A |
| 65 | C |
| 66 | D |
| 67 | A |
| 68 | C |
| 69 | A |
| 70 | A |
| 71 | D |
| 72 | C |
| 73 | D |
| 74 | B |
| 75 | D |
| 76 | C |

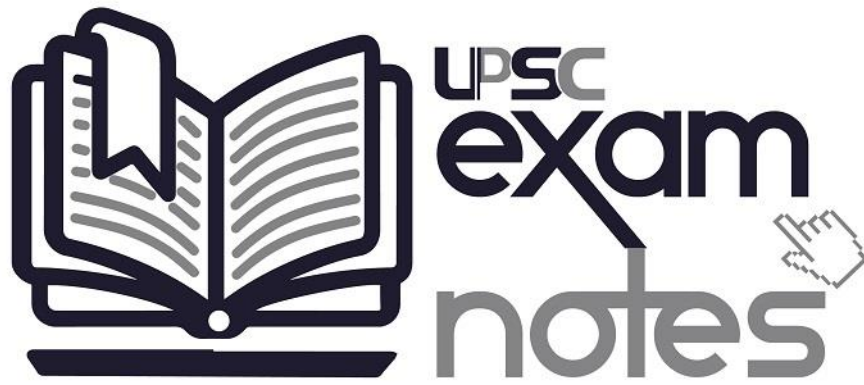


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| | |
|-----|---|
| 77 | A |
| 78 | D |
| 79 | C |
| 80 | C |
| 81 | A |
| 82 | B |
| 83 | A |
| 84 | D |
| 85 | C |
| 86 | C |
| 87 | C |
| 88 | D |
| 89 | A |
| 90 | A |
| 91 | B |
| 92 | B |
| 93 | D |
| 94 | C |
| 95 | B |
| 96 | B |
| 97 | D |
| 98 | D |
| 99 | C |
| 100 | C |



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1. Answer (a)

The Jhelum River does pass through Wular Lake. However, the Krishna River does not directly feed Kolleru Lake. Kolleru Lake is fed by the Upputeru River, which is a tributary of the Krishna River. The Gandak River does not form Kanwar Lake. Kanwar Lake is a man-made lake that was created by the construction of a dam on the Gandak River.

2. Answer (b)

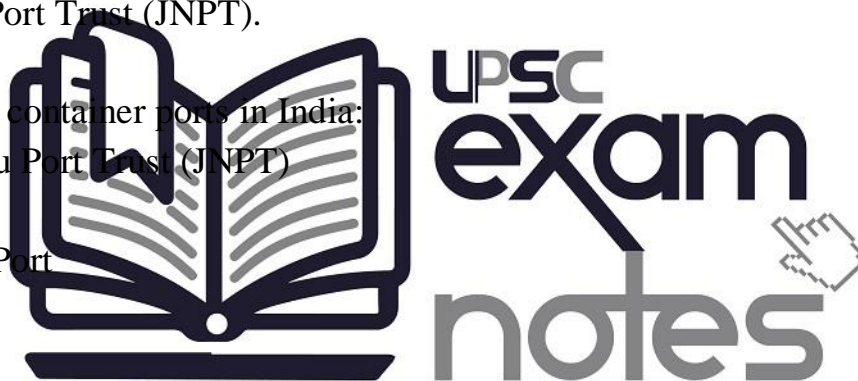
The correct answer is (b) Only two pairs.

Kamarajar Port is the first major port in India to be registered as a company.

Mundra Port is the largest privately owned port in India. However, Visakhapatnam Port is not the largest container port in India. The largest container port in India is Jawaharlal Nehru Port Trust (JNPT).

Here are the top 10 container ports in India:

1. Jawaharlal Nehru Port Trust (JNPT)
2. Mundra Port
3. Visakhapatnam Port
4. Chennai Port
5. Cochin Port
6. Tuticorin Port
7. Kandla Port
8. Kolkata Port
9. Paradip Port
10. New Mangalore Port



3. Answer (b)

The answer is (b), only two. Jackfruit (*Artocarpus heterophyllus*) and Mahua (*Madhuca indica*) are deciduous trees, while Teak (*Tectona grandis*) is an evergreen tree.

A deciduous tree is a tree that sheds its leaves every year. This is in contrast to an evergreen tree, which keeps its leaves all year round. Deciduous trees typically shed their leaves in the fall, when the days get shorter and the weather gets colder.

This helps the tree to conserve energy during the winter months.

Jackfruit is a large, tropical fruit that is native to South and Southeast Asia. It is the largest tree-borne fruit in the world, and can weigh up to 80 pounds. The fruit has a thick, spiky skin and a fleshy, sweet pulp. Jackfruit is often used in savory dishes, such as curries and stews.

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Mahua is a tree that is native to India. It is a deciduous tree that grows up to 20 meters tall. The tree has large, leathery leaves and produces small, white flowers. The flowers are used to make a type of liquor called mahua wine.

Teak is a large, deciduous tree that is native to Southeast Asia. It is a valuable timber tree that is used to make furniture, flooring, and other wood products. Teak is also used in landscaping and is a popular choice for planting in parks and gardens.

4. Answer (a)

The answer is (a), only one. India has more arable area than China, but the proportion of irrigated area is higher in China than in India, and the average productivity per hectare in Indian agriculture is lower than that in China.

According to the World Bank, India has 156,410,000 hectares of arable land, while China has 120,540,000 hectares. However, the proportion of irrigated area is higher in China than in India. In China, 45.3% of arable land is irrigated, while in India, only 40.2% of arable land is irrigated. This means that a larger proportion of China's arable land is able to produce crops year-round, which contributes to China's higher agricultural productivity.

The average productivity per hectare in Indian agriculture is also lower than that in China. In 2018, the average yield of rice in India was 2.4 tons per hectare, while the average yield of rice in China was 4.7 tons per hectare. The average yield of wheat in India was 3.3 tons per hectare, while the average yield of wheat in China was 5.1 tons per hectare. These differences in productivity are due to a number of factors, including differences in climate, soil quality, and agricultural technology.

5. Answer (d)

The best example of repeated falls in sea level, giving rise to present-day extensive marshland among the options provided is the (d) Rann of Kutch. The Rann of Kutch is a vast salt marsh located in the Thar Desert in Gujarat, India. It is known for its seasonal salt marshes, which are created by the retreat of the Arabian Sea during the dry season. The repeated rise and fall of the sea level over time have resulted in the formation of this unique marshland ecosystem.

6. Answer (d)

The answer is (d), titanium. Ilmenite and rutile are both titanium-iron oxides, and they are the most important ores of titanium. Ilmenite is the most abundant titanium mineral, and it is found in many igneous and metamorphic rocks. Rutile is a less common mineral, but it is found in some high-grade metamorphic rocks and in some igneous rocks. Both ilmenite and

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rutile are used to produce titanium dioxide, which is a white pigment that is used in paints, plastics, and other products.

Titanium is a strong, lightweight metal that is resistant to corrosion. It is used in a variety of applications, including aerospace, automotive, and medical devices. Titanium is also used in jewelry and watches because of its attractive appearance and durability.

7. Answer (c)

The answer is (c), the Democratic Republic of the Congo. According to the United States Geological Survey, the Democratic Republic of the Congo produced 100,000 tonnes of cobalt in 2020, which is about 71% of the world's cobalt production. The Democratic Republic of the Congo is the world's largest producer of cobalt, and it is estimated that the country has about 60% of the world's cobalt reserves. Cobalt is a metal that is used in the manufacture of batteries for electric motor vehicles. It is also used in the manufacture of superalloys, which are used in aircraft engines and other high-temperature applications. The Democratic Republic of the Congo is one of the largest producers of cobalt globally and accounts for a significant share of the global cobalt production. Cobalt is a crucial component in the production of lithium-ion batteries used in electric vehicles, making the Democratic Republic of the Congo a critical player in the global supply chain for electric vehicle battery materials.

8. Answer (a)

The Congo Basin is a region of Central Africa that is drained by the Congo River and its tributaries. It is the second largest rainforest in the world, after the Amazon Rainforest. The Congo Basin spans across six countries: Cameroon, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Equatorial Guinea and Gabon. Nigeria, South Sudan, and Uganda are not part of the Congo Basin. Nigeria is located in West Africa, while South Sudan and Uganda are located in East Africa.

9. Answer(d)

The answer is (d) None.

Statement 1 is incorrect. Amarkantak Hills are located in the Maikal Range of the Satpura Range.

Statement 2 is incorrect. The Biligirirangan Hills, also known as BR Hills, are not part of the Satpura Range.

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Statement 3 is incorrect. The Seshachalam Hills, also known as Tirumala Hills, are not part of the Western Ghats.

10. Answer (d)

The answer is (d) None.

Statement 1 is incorrect. The East-West Corridor under Golden Quadrilateral Project connects Silchar and Porbandar.

Statement 2 is incorrect. The Trilateral Highway connects Moreh in Manipur and Mae Sot in Thailand via Myanmar.

□ Statement 3 is incorrect. The Bangladesh-China-India-Myanmar Economic Corridor connects Kolkata in India with Kunming in China.

11. Answer (a)



The correct answer is (a). Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.

Statement-I is correct because India has uranium deposits, but it does not have the technology to enrich uranium to the extent of at least 60%, which is required for the production of electricity. Statement-II is correct because uranium, enriched to the extent of at least 60%, is required for the production of electricity. Statement-II is the correct explanation for Statement-I because it explains why India, despite having uranium deposits, depends on coal for most of its electricity production.

Here are some additional details about the two statements:

- Statement-I: India has uranium deposits, but it does not have the technology to enrich uranium to the extent of at least 60%.

India has uranium deposits in the states of Jharkhand, Rajasthan, and Tamil Nadu. However, the uranium in these deposits is not enriched to the extent of at least 60%, which is required for the production of electricity. Enrichment is the process of increasing the concentration of a particular isotope of an element. In the case of uranium, enrichment is the process of increasing the concentration of the isotope uranium-235. Uranium-235 is the only isotope of uranium that is fissile, which means that it can undergo nuclear fission. Nuclear fission is the process of splitting an atom of uranium-235, which releases a large amount of energy. This energy can be used to generate electricity.

- Statement-II: Uranium, enriched to the extent of at least 60%, is required for the production of electricity.

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As mentioned above, uranium, enriched to the extent of at least 60%, is required for the production of electricity. This is because uranium-235 is the only isotope of uranium that is fissile. Nuclear fission is the process of splitting an atom of uranium-235, which releases a large amount of energy. This energy can be used to generate electricity.

In conclusion, both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.

12. Answer (c)

The correct answer is (c). Statement-I is correct but Statement-II is incorrect.

Statement-I is correct because marsupials are not naturally found in India. Marsupials are mammals that give birth to underdeveloped young and carry them in a pouch until they are developed enough to survive on their own. They are found in Australia, New Guinea, and South America. There are no marsupials native to India.

Statement-II is incorrect because marsupials can thrive in a variety of habitats, including forests, grasslands, and deserts. They can also live in areas with predators. For example, the kangaroo is a marsupial that is found in Australia, which has a variety of predators, including dingoes, snakes, and birds of prey.

The reason why marsupials are not naturally found in India is because they never evolved there. The Indian subcontinent was once part of the supercontinent Gondwana, which also included Australia. However, when Gondwana broke up, the Indian subcontinent drifted away from Australia and the marsupials on the two landmasses were separated. As a result, the marsupials in Australia evolved to be different from the marsupials in India.

13. Answer (a)

The correct answer is (a). The Invasive Species Specialist Group (ISSG) is a scientific advisory body of the Species Survival Commission (SSC) of the International Union for Conservation of Nature (IUCN). The ISSG develops the Global Invasive Species Database, which is a comprehensive database of invasive species. The database is used by scientists, policy-makers, and the public to track the spread of invasive species and to develop strategies for their management.

The other options are incorrect:

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- (b) The United Nations Environment Programme (UNEP) is a global environmental agency that works to protect the environment and promote sustainable development. UNEP does not have a specific program or initiative focused on invasive species.
- (c) The United Nations World Commission for Environment and Development (WCED) was a commission established by the United Nations in 1983 to address the challenges of sustainable development. The WCED published the Brundtland Report in 1987, which is a seminal document on sustainable development. However, the WCED was disbanded in 1987 and is no longer in existence.
- (d) The World Wide Fund for Nature (WWF) is an international non-governmental organization that works to protect the environment. WWF does not have a specific program or initiative focused on invasive species.

14. Answer (b)



The correct answer is (b). Only two of the three animals listed are generally nocturnal or most active after sunset. The Lion-tailed Macaque is a diurnal animal, meaning that it is most active during the day. The Malabar Civet and the Sambar Deer are both nocturnal animals, meaning that they are most active at night.

The Lion-tailed Macaque (*Macaca silenus*) is a species of macaque monkey that is native to the Western Ghats of India. They are diurnal animals, meaning that they are most active during the day. They spend most of their time in the trees, where they eat fruit, leaves, and insects. They live in groups of up to 20 individuals, and they are led by a dominant male.

The Malabar Civet (*Viverra civettina*) is a species of civet that is native to the Western Ghats of India. They are nocturnal animals, meaning that they are most active at night. They spend most of their time on the ground, where they hunt for small mammals, reptiles, and birds. They are solitary animals, and they only come together to mate.

The Sambar Deer (*Rusa unicolor*) is a species of deer that is native to South and Southeast Asia. They are nocturnal animals, meaning that they are most active at night. They spend most of their time in the forest, where they eat leaves, shoots, and fruits. They live in herds of up to 50 individuals, and they are led by a dominant male.

15. Answer (c)

The correct answer is (c). Honey bees perform a waggle dance to communicate the location of food sources to other members of the hive. The dance consists of a series of movements that indicate the direction and distance to the food source. The other options are incorrect:

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- (a) Butterflies do not perform a waggle dance.
- (b) Dragonflies do not perform a waggle dance.
- (d) Wasps do not perform a waggle dance.

The waggle dance is a complex form of communication that allows honey bees to share information about the location of food sources with other members of the hive. The dance consists of a series of movements that indicate the direction and distance to the food source. The direction of the dance indicates the direction of the food source relative to the sun. The distance to the food source is indicated by the duration of the waggle dance. The longer the dance, the further away the food source is.

The waggle dance is an important form of communication for honey bees. It allows them to share information about the location of food sources with other members of the hive. This helps the hive to collect food more efficiently.

16. Answer (d)

The correct answer is (d). All four statements are correct.



- Some mushrooms have medicinal properties. For example, the reishi mushroom is used in traditional Chinese medicine to boost the immune system and fight cancer.
- Some mushrooms have psychoactive properties. For example, the psilocybin mushroom contains the psychoactive compound psilocybin, which can cause hallucinations and other altered states of consciousness.
- Some mushrooms have insecticidal properties. For example, the oyster mushroom contains the compound pleurotin, which is toxic to insects.
- Some mushrooms have bioluminescent properties. For example, the jack-o'-lantern mushroom emits a greenish-yellow light from its gills.

Mushrooms are a diverse group of organisms with a wide range of properties. Some mushrooms are edible, while others are poisonous. Some mushrooms have medicinal properties, while others have psychoactive properties. Some mushrooms are even bioluminescent.

17. Answer (b)

The answer is (b), only two of the statements are correct. Indian squirrels are omnivorous, and they do store their food materials like nuts and seeds in the ground. However, they do

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not build nests by making burrows in the ground. Instead, they build nests in trees or in other high places.

Indian squirrels are a type of rodent that is native to India. They are small animals, with a body length of about 10 inches and a tail length of about 6 inches. They are brown in color, with a white belly. Indian squirrels are very agile animals, and they are good climbers. They live in forests, gardens, and other areas where there are trees.

Indian squirrels are omnivorous, meaning that they eat both plants and animals. Their diet includes fruits, nuts, seeds, insects, and small birds. They are important seed dispersers, and they help to spread seeds of trees and other plants.

Indian squirrels are social animals, and they live in groups called colonies. A colony of Indian squirrels can have up to 20 individuals. The members of a colony help each other to find food and to raise young.

Indian squirrels are an important part of the Indian ecosystem. They help to spread seeds of trees and other plants, and they are a food source for other animals.



18. Answer (b)

The correct answer is (c). All three statements are correct.

- Some microorganisms can grow in environments with temperature above the boiling point of water. For example, the bacterium Strain 121 can grow at temperatures up to 130 degrees Celsius.
- Some microorganisms can grow in environments with temperature below the freezing point of water. For example, the bacterium Psychrobacter cryohalolentis can grow at temperatures as low as -20 degrees Celsius.
- Some microorganisms can grow in highly acidic environment with a pH below 3. For example, the bacterium Acidithiobacillus ferrooxidans can grow at a pH of 2.5.

Microorganisms are a diverse group of organisms that can be found in a wide range of environments. Some microorganisms are able to survive in extreme conditions, such as high temperatures, low temperatures, and high acidity. These microorganisms have adapted to these conditions by developing specialized mechanisms that allow them to survive.

For example, microorganisms that can grow in high temperatures have developed enzymes that are stable at high temperatures. These enzymes allow the microorganisms to carry out

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the chemical reactions that are necessary for life. Microorganisms that can grow in low temperatures have developed mechanisms that allow them to protect their cells from the damage that can be caused by cold temperatures. These mechanisms include the production of antifreeze proteins and the accumulation of lipids in the cell membrane. Microorganisms that can grow in high acidity have developed mechanisms that allow them to protect their cells from the damage that can be caused by acid. These mechanisms include the production of acid-resistant proteins and the accumulation of metal ions in the cell.

The ability of microorganisms to survive in extreme conditions is a testament to their adaptability and resilience. These microorganisms play an important role in the environment, and they are a valuable resource for scientists who are studying the limits of life.

19. Answer (b)

The animal that makes a tool with a stick to scrape insects from a hole in a tree or a log of wood is (b) Orangutan. Orangutans, which are highly intelligent primates native to the rainforests of Borneo and Sumatra, have been observed using tools in their natural habitat. They exhibit tool-making behavior, including using sticks to extract insects from tree holes or logs. This behavior showcases their problem-solving abilities and adaptability in acquiring food resources



20. Answer (d)

The answer is (d) All four.

Hydrofluorocarbons (HFCs) are man-made chemicals that are used in a variety of products, including aerosols, foam agents, fire retardants, and lubricants. HFCs are greenhouse gases that contribute to climate change, and they are also ozone-depleting substances. As a result, there is a global effort to phase out the use of HFCs.

Aerosols are products that are dispensed from a pressurized container. They can contain a variety of substances, including HFCs. Foam agents are substances that are used to create foam. They can be used in a variety of applications, including insulation, packaging, and fire suppression. Fire retardants are substances that are used to slow the spread of fire. They can be used in a variety of applications, including construction, textiles, and electronics. Lubricants are substances that are used to reduce friction. They can be used in a variety of applications, including machinery, vehicles, and medical devices.

HFCs are used in the making of all four of these products. They are used as propellants in aerosols, as blowing agents in foam agents, as fire retardants, and as lubricants. As a result, HFCs are used in a wide variety of products and applications.

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21. Answer (b)

The correct option in respect of the given statements is (b) Both Statement-I and Statement-II are correct, and Statement-II is not the correct explanation for Statement-I.

Statement-I is correct. Interest income from the deposits in Infrastructure Investment Trusts (InvITs) distributed to their investors is indeed exempted from tax, but the dividend is taxable. This is in line with the tax treatment of such income under the relevant provisions.

Statement-II is also correct. InvITs are recognized as borrowers under the 'Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002'. This recognition allows InvITs to raise funds through borrowing for their infrastructure projects.

However, Statement-II is not the correct explanation for Statement-I. The tax treatment of interest income and dividend income from InvITs is not directly linked to their recognition as borrowers under the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002. The tax treatment is determined by separate provisions of the income tax laws.



22. Answer (a)

The correct answer is (a). Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.

Statement-I is correct because many central banks around the world have raised interest rates in the post-pandemic recent past. This is because central banks believe that raising interest rates will help to slow down the economy and reduce inflation.

Statement-II is also correct. Central banks generally assume that they have the ability to counteract rising consumer prices via monetary policy means. This is because raising interest rates makes it more expensive for businesses to borrow money, which can lead to slower economic growth. Slower economic growth can help to reduce inflation by reducing the demand for goods and services.

In addition to raising interest rates, central banks can also use other monetary policy tools to combat inflation. These tools include:

- Open market operations: Central banks can buy or sell government bonds in the open market. When they buy bonds, they inject money into the economy, which can lead to inflation. When they sell bonds, they remove money from the economy, which can help to reduce inflation.

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- Reserve requirements: Central banks can set reserve requirements for banks. This is the amount of money that banks must hold in reserve, rather than lending out. When reserve requirements are increased, banks have less money to lend out, which can help to slow down the economy and reduce inflation.
- Discount rates: Central banks can set the discount rate, which is the interest rate at which banks can borrow money directly from the central bank. When the discount rate is increased, it becomes more expensive for banks to borrow money, which can lead to slower economic growth and reduced inflation.

Central banks use a combination of these tools to try to keep inflation under control. However, it is important to note that there is no guarantee that these tools will be successful. Inflation can be a complex phenomenon, and there are many factors that can contribute to it. As a result, it can be difficult for central banks to predict and control inflation.

23. Answer (b)



The correct answer is (b). Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I.

Statement-I is correct because carbon markets are a way to reduce greenhouse gas emissions by putting a price on carbon. This can incentivize businesses to reduce their emissions, or to offset their emissions by investing in projects that reduce emissions.

Statement-II is also correct because when businesses reduce their emissions, they are essentially giving up something of value. This value is then transferred to the government, which can use it to fund climate change mitigation and adaptation efforts.

In addition to transferring resources from the private sector to the state, carbon markets can also help to:

- Create a level playing field: Carbon markets can help to level the playing field for businesses that are trying to reduce their emissions. This is because businesses that are not reducing their emissions will be at a competitive disadvantage to those that are.
- Drive innovation: Carbon markets can drive innovation by providing businesses with a financial incentive to develop new technologies that reduce emissions.
- Increase transparency: Carbon markets can increase transparency by providing businesses with a way to track their emissions and to compare their performance to other businesses.

While carbon markets do involve a transfer of resources to the state, that is not the primary or sole purpose of carbon markets. The main purpose of carbon markets is to create economic incentives for emission reductions, promote cleaner technologies, and facilitate the

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transition to a low-carbon economy. The transfer of resources to the state is a consequential aspect of carbon markets rather than their fundamental objective

24. Answer (a)

The correct answer is (a). Conducting 'Open Market Operations'.

Sterilization is a monetary policy tool that is used to offset the effects of foreign exchange intervention. When a central bank intervenes in the foreign exchange market, it buys or sells foreign currency in order to influence the exchange rate. This can lead to an increase or decrease in the money supply. Sterilization is used to offset these changes in the money supply and to keep the money supply constant.

The Reserve Bank of India (RBI) uses open market operations to sterilize the effects of foreign exchange intervention. Open market operations involve the buying and selling of government bonds. When the RBI buys government bonds, it injects money into the economy. When the RBI sells government bonds, it removes money from the economy. By buying and selling government bonds, the RBI can offset the effects of foreign exchange intervention and keep the money supply constant.

The other activities of the RBI are not considered to be part of sterilization. Oversight of settlement and payment systems involves the regulation of the systems that are used to transfer money between banks and other financial institutions. Debt and cash management for the Central and State Governments involves the management of the government's debt and cash flows. Regulating the functions of Non Banking Financial Institutions involves the regulation of non-bank financial institutions such as insurance companies and mutual funds.

25. Answer (C)

The correct answer is (c). Only three.

The government bond market, the stock market, and the treasury bill market are all included in capital markets. The call money market is not a capital market, but a money market.

A capital market is a financial market where long-term debt or equity-backed securities are bought and sold. The government bond market is a capital market because it is where government bonds are bought and sold. The stock market is a capital market because it is where stocks are bought and sold. The treasury bill market is a capital market because it is where treasury bills are bought and sold.

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The call money market is a money market, not a capital market. A money market is a financial market where short-term debt is bought and sold. The call money market is a money market because it is where short-term loans are made and repaid.

In conclusion, only three of the four markets listed are included in capital markets. The government bond market, the stock market, and the treasury bill market are all capital markets. The call money market is a money market, not a capital market

26. Answer (b)

The correct answer is (b). Many marginal farmers in an area organize themselves into groups and synchronize and harmonize selected agricultural operations.

The Small Farmer Large Field (SFLF) model is a collective action model that allows small farmers to benefit from achieving economies of scale by organizing themselves into groups and synchronizing and harmonizing selected operations. This model is participatory and flexible and allows small farmers to benefit from economies of scale by organizing themselves into groups and synchronizing and harmonizing selected operations. It was piloted in two villages of Odisha, an eastern Indian state, with 112 farmers (35 females and 77 males).

The SFLF model has been shown to be effective in increasing crop yields, reducing costs, and improving farmers' income. It has also been shown to be a sustainable model that can be replicated in other parts of the world.

The other options are not correct descriptions of the SFLF model. Option (a) is a description of a refugee resettlement program. Option (c) is a description of a contract farming arrangement. Option (d) is a description of a contract farming arrangement with a twist.

27. Answer (c)

The correct answer is (c), all three statements are correct.

The Government of India provides a Minimum Support Price (MSP) for niger seeds. In 2020-21, the MSP was Rs 6,930, and in 2022-23, the MSP was Rs 7,287.

Niger is cultivated as a Kharif crop. Kharif crops are crops that are grown during the monsoon season in India, which typically lasts from June to September.

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Some tribal people in India use niger seed oil for cooking. Niger seed oil is a vegetable oil that is extracted from the seeds of the niger plant. It is a popular cooking oil in India, and is also used in cosmetics and other products.

28. Answer (c)

The correct answer is (c), only three of the above are considered intangible investments.

Intangible investments are investments in assets that do not have a physical presence. They include things like brand recognition, intellectual property, and mailing lists of clients. Inventory is a tangible asset, as it is something that can be physically touched and moved.

Brand recognition is an intangible asset because it is something that cannot be physically touched or moved. It is the value that a company's brand has in the minds of consumers. Intellectual property is an intangible asset because it is something that is created by the mind, such as a patent, trademark, or copyright. A mailing list of clients is an intangible asset because it is a list of potential customers that a company has built up over time.

Inventory is a tangible asset because it is something that can be physically touched and moved. It is the stock of goods that a company has on hand to sell to customers.



29. Answer (b)

The correct answer is (b), only three of the above were used as criteria other than population area and income distance.

The Fifteenth Finance Commission used the following criteria for horizontal tax devolution:

- Population
- Area
- Income distance
- Demographic performance
- Forest and ecology
- Tax and fiscal efforts

Governance reforms and stable government were not used as criteria for horizontal tax devolution.

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1: Criteria for devolution

| Criteria | 14 th FC | 15 th FC | 15 th FC |
|-------------------------|---------------------|---------------------|---------------------|
| | 2015-20 | 2020-21 | 2021-26 |
| Income Distance | 50.0 | 45.0 | 45.0 |
| Area | 15.0 | 15.0 | 15.0 |
| Population (1971) | 17.5 | - | - |
| Population (2011)* | 10.0 | 15.0 | 15.0 |
| Demographic Performance | - | 12.5 | 12.5 |
| Forest Cover | 7.5 | - | - |
| Forest and Ecology | - | 10.0 | 10.0 |
| Tax and fiscal efforts* | - | 2.5 | 2.5 |
| Total | 100 | 100 | 100 |

Note: *14th FC used the term "demographic change" which was defined as Population in 2011. *The report for 2020-21 used the term "tax effort", the definition of the criterion is same.
Sources: Reports of the 14th and 15th Finance Commissions, PRS.

30. Answer (b)

The correct answer is (b), only two of the above are focused by UNOPS Sustainable Investments in Infrastructure and Innovation initiative.

UNOPS Sustainable Investments in Infrastructure and Innovation initiative focuses on the following infrastructure sectors:

S3i seed-funds large-scale affordable housing, renewable energy, and health infrastructure projects. Health care and renewable energy are not focused by UNOPS Sustainable Investments in Infrastructure and Innovation initiative

31. Answer (C)

The correct answer is (c), fair application of law.

Due process of law is a legal principle that requires the government to follow fair procedures when it takes action that affects a person's life, liberty, or property. This means that the government must give a person notice of the action, an opportunity to be heard, and a decision by a neutral decision-maker.

Due process of law is a fundamental right that is guaranteed by the Fifth Amendment to the United States Constitution. It is also guaranteed by the Fourteenth Amendment, which applies to the states.

Due process of law is important because it protects individuals from arbitrary and unfair government action. It ensures that the government cannot take away a person's life, liberty, or property without following fair procedures.

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The principle of natural justice is a legal principle that requires the government to act fairly and impartially. It is similar to due process of law, but it is not as well-defined.

The procedure established by law is the process that the government must follow when it takes action that affects a person's life, liberty, or property. This process is usually defined by statute or by court decisions.

Equality before law is a legal principle that requires the government to treat all people equally under the law. It is similar to due process of law, but it is not as well-defined.

32. Answer (a)

The correct answer is (a), both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.

Statement-I states that prisons in India are managed by State Governments with their own rules and regulations for the day-to-day administration of prisons. This is correct because the Prisons Act, 1894 expressly kept the subject of prisons in the control of Provincial Governments.

Statement-II states that prisons in India are governed by the Prisons Act, 1894. This is also correct. The Prisons Act, 1894 is the main legislation governing prisons in India. It sets out the powers and duties of prison authorities, the conditions of imprisonment, and the treatment of prisoners.

Statement-II is the correct explanation for Statement-I because it explains why Statement-I is correct. The Prisons Act, 1894 expressly kept the subject of prisons in the control of Provincial Governments. This means that the State Governments are responsible for the management of prisons in their respective states. They have their own rules and regulations for the day-to-day administration of prisons.

33. Answer (c)

The correct answer is (c), it defines and limits the powers of government.

The constitution of a country is the supreme law of the land. It sets out the basic principles of government and the rights of citizens. It also defines the powers of the different branches of government and how they interact with each other.

The constitution is important because it provides a framework for government and ensures that the government does not abuse its power. It also protects the rights of citizens and ensures that they are treated fairly.

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The other options are not correct because they do not reflect the chief purpose of the constitution. Option (a) is incorrect because the constitution does not determine the objective for the making of necessary laws. Option (b) is incorrect because the constitution does not enable the creation of political offices and a government. Option (d) is incorrect because the constitution does not secure social justice, social equality and social security.

The constitution is a living document that can be amended to reflect the changing needs of society. However, the basic principles of the constitution are designed to be enduring and to provide a stable foundation for government.

34. Answer (b)

The correct answer is (b), the 42nd Amendment.

The 42nd Amendment to the Constitution of India, officially known as The Constitution (Forty-second amendment) Act, 1976, was the most controversial constitutional amendment in history. It attempted to reduce the power of the Supreme Court and High Courts to pronounce upon the constitutional validity of laws. It laid down the Fundamental Duties of Indian citizens to the nation. This amendment brought about the most widespread changes to the Constitution in its history.

The 42nd Amendment is regarded as the most controversial constitutional amendment in Indian history. It was passed during the Emergency (25 June 1975 – 21 March 1977) by the Indian National Congress government headed by Indira Gandhi. The bill was passed in the Lok Sabha on 2 November 1976 and in the Rajya Sabha on 11 November 1976, and received assent from then President Fakhruddin Ali Ahmed on 18 December 1976.

The 42nd Amendment is widely believed to have been enacted to overcome the judicial interpretations of the Fundamental Rights. It was passed in the wake of the Supreme Court's judgment in *Kesavananda Bharati v. State of Kerala*, which held that the basic structure of the Constitution could not be amended by Parliament. The 42nd Amendment sought to overturn this judgment by declaring that Parliament could amend any part of the Constitution, including the basic structure.

The 42nd Amendment was also controversial because it was passed during the Emergency, when fundamental rights were suspended. The amendment was seen as an attempt by the government to consolidate its power and to curb the powers of the judiciary.

The 42nd Amendment was eventually repealed by the 44th Amendment in 1978. The 44th Amendment restored the supremacy of the Constitution and the powers of the judiciary.

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35. Answer (a)

The correct answer is (a). Only one of the four organizations/bodies listed is a constitutional body.

The National Commission for Backward Classes is a constitutional body, as it is established by Article 338B of the Constitution of India. The National Human Rights Commission, the National Law Commission, and the National Consumer Disputes Redressal Commission are all statutory bodies, as they are established by Acts of Parliament.

A constitutional body is a body that is established by the Constitution of India. A statutory body is a body that is established by an Act of Parliament.

36. Answer (d)

Election for the post of the President of India is not postponed on the ground that some Legislative Assemblies have been dissolved and elections are yet to take place. As when an assembly is dissolved, the members cease to be qualified to vote in the presidential election, even if fresh elections to the dissolved assembly are not held before the Presidential election. **So, statement 2 is not correct.**

If the election of the President of India is declared void by the Supreme Court of India, all acts done by him/her in the performance of duties of his/her office of President before the date of decision become invalid.

This statement is incorrect. In the event that the election of the President of India is declared void, the acts performed by the President before the date of the decision are not automatically invalidated. The President's actions are considered valid until the point of the decision declaring the election void.

When a Bill is presented to the President of India, the Constitution prescribes time limits within which he/she has to declare his/her assent.

This statement is incorrect. The Constitution of India does not prescribe specific time limits within which the President must declare his or her assent to a bill. The President has the authority to decide whether to assent to a bill or withhold assent, but there are no specified time limits for this decision.

37. Answer (a)

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The Finance Bill is a type of Money Bill. Money Bills are bills that deal with the following matters:

- Imposition, abolition, remission, alteration or regulation of any tax at the union or state level.
- Regulation of borrowing of money by the Government of India.
- Giving of any guarantee by the Government of India, or the modification of the terms of any guarantee already given by the Government of India.

When the Lok Sabha transmits a Money Bill to the Rajya Sabha, the Rajya Sabha cannot amend or reject the Bill, it can only make recommendations. The Lok Sabha has the power to accept or reject the recommendations of the Rajya Sabha. If the Lok Sabha rejects the recommendations of the Rajya Sabha, the Money Bill is deemed to have been passed by the Lok Sabha in the form in which it was originally passed.

As a finance bill is a money bill so **no joint sitting** of the two houses is allowed with regard to a finance bill **under Article 108**. So, **statement 3 is not correct**.

38. Answer (c)

Conservation reserves and community reserves in India are terms denoting protected areas of India which typically act as buffer zones to or connectors and migration corridors between established national parks, wildlife sanctuaries and reserved and protected forests of India.

These protected area categories were first introduced in the Wildlife (Protection) Amendment Act of 2002 – the amendment to the Wildlife Protection Act of 1972. These categories were added because of reduced protection in and around existing or proposed protected areas due to private ownership of land, and land use.

Section 33 of the WLPA passes the authority of the sanctuary to the chief wildlife warden. So, statement 1 is correct.

Such areas are designated as conservation areas if they are uninhabited and completely owned by the Government of India but **used for subsistence by communities** and community areas if part of the lands are privately owned. Thus, **people of such areas are allowed to collect non-timber forest produce. So, statement 3 is correct.**

After a forest has been made into a community reserve, **people cannot hunt there, nor can they use it for agricultural practices, leave alone jhum cultivation. So, statement 2 is correct and statement 4 is incorrect.**

39. Answer (b)

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The correct answer is (b). Only statements 1 and 3 are correct.

Statement 1 is correct because the President of India has the power to notify areas as Scheduled Areas under Article 244(1) of the Constitution of India.

Criteria for declaring any area as a “Scheduled Area under the Fifth Schedule are:

- Preponderance of tribal population
- Compactness and reasonable size of the area
- **A viable administrative entity such as a district, block or taluk. So, statement 2 is correct.**
- Economic backwardness of the area as compared to the neighboring areas.

The Governor of each State having Scheduled Areas therein shall annually, or whenever so required by the President, make a report to the President regarding the administration of the Scheduled Areas in that State and the executive power of the Union shall extend to the giving of directions to the State as to the administration of the said areas. So, statement 3 is not correct.



40. Answer (c)

The correct answer is:

Statement-I is correct but Statement-II is incorrect.

Explanation:

Statement-I states that the Supreme Court of India has held in some judgments that the reservation policies made under Article 16(4) of the Constitution of India would be limited by Article 335 for maintenance of efficiency of administration. This statement is correct. The Supreme Court has indeed recognized that while reservations are important for ensuring social justice and equality, they should also be balanced with the maintenance of efficiency in administration, as mentioned in Article 335 of the Constitution.

However, Statement-II states that Article 335 of the Constitution of India defines the term 'efficiency of administration.' This statement is incorrect. Article 335 does not define the term 'efficiency of administration.' Instead, Article 335 simply states that the claims of the members of the Scheduled Castes and the Scheduled Tribes should be considered in the context of maintaining efficiency in administration.

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Therefore, the correct answer is (c) Statement-I is correct but Statement-II is incorrect.

41. Answer (a)

The correct answer is (a) Andhra.

Dhanyakataka was a prominent Buddhist center located in the Andhra region of India. It was a major center of the Mahasanghika school of Buddhism, and was also home to a large stupa that was said to have been built by the emperor Ashoka. Dhanyakataka was an important center of Buddhist learning and pilgrimage, and was visited by many famous Buddhist monks, including Nagarjuna and Aryadeva.

42. Answer (b)

The practice of preserving the remains of an important personality below accumulated earth **was long in existence. Buddhist art adopted this practice** and the structure built over such a site was known as Stupa. According to Buddhist sources, the remains of the Buddha's body were divided into eight parts and placed under the Stupas. These during the time of Asoka, were dug out and redistributed which led to the construction of other Stupas - the sacred places of Buddhism. The worship of Stupas led to their ornamentation and a specific type of architecture developed for their construction. **So, statement 1 is not correct.** According to Buddhist sources, the remains of the Buddha's body (relics) were divided into eight parts and placed under the stupas. **So, statement 2 is correct**

According to **A. Cunningham**, Maisey and Foucher the Stupas can be classified into five categories

Relic stupas

Relic stupas are those in which the relics of Buddha and other religious persons are buried. - **SANCHI**.

Object stupas

Object stupas are those in which the objects belonging to the Buddha or his disciples are buried. - **VAISHALI** .

Commemorative stupas

Commemorative stupas are those which are built to commemorate events in the life of Buddha and his disciples. - **ANURADHAPURA**

Symbolic stupas

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Symbolic stupas are those which are built to symbolise various aspects of Buddhist theology.
- LEH

Votive stupas

Votive stupas are constructed to commemorate visits or gain spiritual benefits. can be made from metal, stone, glass, etc

So, statement 3 is correct.

43. Answer (b)

The correct answer is (b). Korkai, Poompuhar and Muchiri were well known as ports in ancient South India.

Korkai was an important port city in the Chola kingdom, located on the Gulf of Mannar. It was a major center of trade with the Roman Empire and other parts of the world. Poompuhar was also an important port city, located on the Kaveri River. It was the capital of the Chola kingdom during the Sangam period (3rd century BCE to 3rd century CE). Muchiri was a port city located on the Malabar Coast. It was a major center of trade with the Arabian Peninsula and other parts of the world.

These three port cities were important centers of trade and commerce in ancient South India. They played a vital role in the economic development of the region, and they helped to spread Indian culture and ideas to other parts of the world.

44. Answer (d)

The correct answer is (d). Vattakkirutal was a practice in ancient South India in which a defeated king would commit ritual suicide by starving himself to death. This was seen as a way to preserve the king's honor and to prevent him from being captured and humiliated by the enemy.

The practice of Vattakkirutal is mentioned in several Sangam poems, which are a collection of Tamil poems written during the Sangam period (3rd century BCE to 3rd century CE). In one poem, a king who has been defeated in battle declares that he will commit Vattakkirutal and die with honor. In another poem, a queen tries to dissuade her husband from committing Vattakkirutal, but he insists that it is the only way to preserve his honor.

The practice of Vattakkirutal was seen as a way for a defeated king to die with dignity and to avoid the humiliation of being captured by the enemy. It was also seen as a way to protect the king's family and kingdom from the enemy.

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The practice of Vattakkiruthal was not unique to ancient South India. It was also practiced in other parts of the world, such as ancient Japan. In Japan, the practice was known as seppuku, and it was seen as a way for a samurai to die with honor.

The practice of Vattakkiruthal is no longer practiced in India or in any other part of the world. However, it remains an important part of the history of ancient South India, and it is a reminder of the values that were important to the people of that time.

45. Answer (d)

None of the mentioned dynasties, Hoysala, Gahadavala, Kakatiya, and Yadava, established their kingdoms in the early eighth century AD.

Therefore, the correct answer is (d) None

Hoysala

- The Hoysalas came into the limelight from the beginning of the **11th century**. In the Kaliyur (near Talakad) inscription of about **990 A.D.**, a Hoysala chief is mentioned in the Ganga confederacy fighting against Aprameya, a Chola general, and this chief is identified as Nripakama, the earliest known member of the Hoysala dynasty. His son and successor **Vinayaditya** is first referred to in a record of **1047 A.D.** So, **option 1 is not correct.**

Gahadwala

- With the break-up of the Pratihara empire, a number of Rajput states came into existence in north India.
- The most important of **these were the Gahadavalas of Kanauj**, the Paramaras of Malwa, and the Chauhans of Ajmer. There were other smaller dynasties in different parts of the country, such as the Kalachuris in the area around modern Jabalpur, the Chandellas in Bundelkhand, the Chalukyas of Gujarat, the Tomars of Delhi, etc Bengal remained under the control of the Palas and, later, under the Senas. The Gahadavalas of Kanauj gradually squeezed the Palas out of Bihar.
- **Chandradeva (1089–1103 CE)**, also known as **Chandraditya**, was an Indian king from the Gahadavala dynasty. He ruled the Antarvedi country in present-day Uttar Pradesh, including **Kanyakubja and Varanasi**.
- At its height, the Gahadval kingdom extended from Mongyr in Bihar to Delhi. The greatest ruler in the dynasty was **Govind Chandra** who ruled in the first half of the twelfth century. He made **Kanauj** his capital, with Banaras

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remaining a second capital. Persian sources of the time call Govind Chandra the greatest ruler of Hindustan.

- The Gahadvars are reputed to be the biggest defenders against the continued Ghaznavid raids into the doab. Govind Chandra was succeeded by Jai Chandra who had to contend with the rising power of the Chauhans. **So, option 2 is not correct.**

Kakatiya

- The sub-feudatories of the Rashtrakutas emerged themselves as independent kings and founded the **Kakatiya dynasty around 950 AD** and this kingdom became a strong and united whole of Telugu-speaking lands and lasted for more than three centuries and a half. The kingdom saw powerful kings like Ganapatideva, Rudradeva and Prataparudra as well as the first ever woman ruler in the subcontinent Rudramadevi. The Kakatiyas ruled from Hanumakonda in the beginning and shifted their capital to Warangal later. **So, option 3 is not correct.**

Yadava

- In the last quarter of the **12th century AD** the Yadavas of Devagiri came into prominence. They had previously been ruling over Seunadesha (Khandesh) as feudatories of the Chalukyas of Kalyani. The founder of the family was Dridhaprahara, the son of Subahu. **So, option 4 is not correct.**

46. Answer (b)

The correct answer is (b), Only two.

1. Devi Chandragupta was written by Viśākhadatta.
2. Hammira-Mahakavya was written by Nayachandra Suri.
3. Milinda-panha was written by Nagasena.
4. Nitiuakyamrita was written by Somadeva Suri.

Therefore, only two of the pairs are correctly matched.

47. Answer (b)

The statement "Souls are not only the property of animal and plant life, but also of rocks, running water and many other natural objects not looked on as living by other religious

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sects" reflects one of the core beliefs of Jainism. Jainism is an ancient Indian religion that teaches the concept of Ahimsa, or non-violence. Jains believe that all living beings, including animals, plants, and even inanimate objects, have a soul. This belief is known as Anekāntavada, or the doctrine of non-oneness. Jains believe that all beings are interconnected and that we should treat all living things with respect.

Jainism upholds the belief in the presence of souls or consciousness in all forms of life and even inanimate objects. This principle is known as "Jiva" in Jainism

48. Answer (a)

The correct answer is (a), Devaraya I.

Devaraya I was the fourth ruler of the Vijayanagara Empire. He ruled from 1406 to 1422. He was a great warrior and a successful administrator. He expanded the empire and made it one of the most powerful empires in South India. He also constructed a large dam across the Tungabhadra River and a canal-cum-aqueduct several kilometres long from the river to the capital city. This dam and canal system provided water for irrigation and drinking water for the people of the empire. It also helped to control floods and droughts.

49. Answer (c)

The correct answer is (c), Bahadur Shah.

Bahadur Shah was the last independent Sultan of Gujarat. He ruled from 1526 to 1537. He was a weak and incompetent ruler. He was defeated by the Portuguese in 1535 and forced to surrender Diu to them. Diu was a strategically located island and port. It was a major center of trade and commerce. The Portuguese wanted to control Diu because it would give them control over the trade routes between India and Europe.

Bahadur Shah was a weak and incompetent ruler. He was unable to defend his kingdom against the Portuguese. He was forced to surrender Diu to them in 1535. This was a major blow to the Gujarat Sultanate. It lost control of a major trade center and its prestige was greatly diminished.

50. Answer (d)

The correct answer is (d), the Charter Act of 1833.

The Charter Act of 1833 was an act of the Parliament of the United Kingdom which renewed the charter of the British East India Company, and continued the Company's rule in India. The act also made the Governor-General of Bengal the Governor-General of India, and vested in him all civil and military powers.

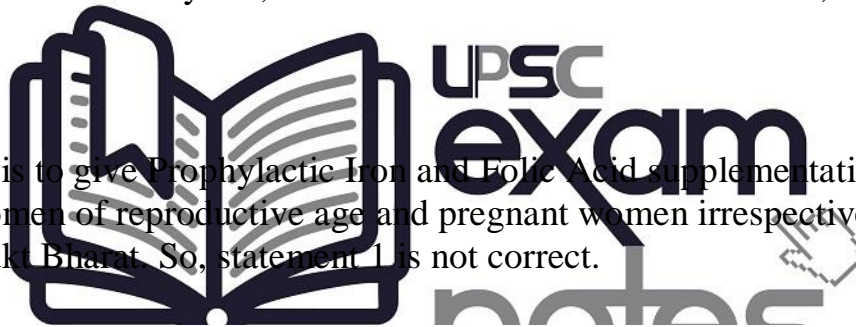
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The Charter Act of 1833 was a significant piece of legislation, as it marked the beginning of the end of the British East India Company's rule in India. The act also paved the way for the establishment of direct British rule in India.

51. Answer: (b)

Janani Suraksha Yojana (JSY) is a safe motherhood intervention under the National Rural Health Mission (NRHM). JSY is a 100 % centrally sponsored scheme. So, statement 1 is not correct.

It is being implemented with the objective of reducing maternal and neo-natal mortality by promoting institutional delivery among poor pregnant women. So, statements 2 and 3 are correct. Under the Janani Shishu Suraksha Karyakaram scheme (and not under JSY), all pregnant women and infants will get free treatment benefits at public health institutions including zero expenses delivery. So, statement 4 is not correct. Therefore, option (b) is the correct answer



52. Answer (c)

A key intervention is to give Prophylactic Iron and Folic Acid supplementation to children, adolescents and women of reproductive age and pregnant women irrespective of anemia, under Anaemia Mukt Bharat. So, statement 1 is not correct.

The Anaemia Mukt Bharat Strategy (AMBS) is a national-level initiative launched by the Government of India in 2018 to reduce anaemia among women, children and adolescents. The strategy focuses on six key interventions:

- Prophylactic iron and folic acid (IFA) supplementation
- Deworming
- Behaviour change communication (BCC)
- Testing and treatment of anaemia
- Fortification of foods with iron and folic acid
- Addressing non-nutritional causes of anaemia

53. Answer (a)

The correct answer is (a).

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Statement 1 is correct: carbon fibers are used in the manufacture of components used in automobiles and aircrafts. Carbon fibers are strong and lightweight, making them ideal for use in these applications.

Statement 2 is incorrect: carbon fibers can be recycled. There are a number of different methods for recycling carbon fibers, including pyrolysis, solvolysis, and mechanical recycling.

Pyrolysis is a process that uses high temperatures to break down the carbon fibers into their constituent elements. Solvolysis is a process that uses solvents to dissolve the resin that binds the carbon fibers together. Mechanical recycling is a process that uses physical methods, such as grinding and shredding, to break down the carbon fibers.

Once the carbon fibers have been recycled, they can be used to make new products, such as composite materials, insulation, and filters.



54. Answer (c)

An accelerometer is a device that measures acceleration, which is the rate of change of velocity. Acceleration can be caused by a change in speed or direction. Accelerometers are used in many different applications, including airbags, laptops, and smartphones.

In the case of airbags, accelerometers are used to detect sudden deceleration, which is a change in speed or direction that occurs very quickly. When the accelerometer detects a sudden deceleration, it sends a signal to the airbag control unit, which then deploys the airbags.

In the case of laptops, accelerometers are used to detect accidental free fall. When the accelerometer detects that the laptop is falling, it sends a signal to the hard drive, which then turns off the hard drive. This helps to protect the hard drive from damage.

In the case of smartphones, accelerometers are used to detect the tilt of the phone. When the accelerometer detects that the phone is tilted, it sends a signal to the operating system, which then rotates the display between portrait and landscape mode.

Therefore, the function of an accelerometer is required in all three of the above actions.

55. Answer (b)

The correct answer is (b), only two.

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Biofilters are devices that use biological processes to remove pollutants from water. They are commonly used in recirculating aquaculture systems (RAS) to remove ammonia, nitrite, and nitrate.

Biofilters do not remove uneaten fish feed. Uneaten fish feed is removed by mechanical filters, such as drum filters or screen filters.

Biofilters do convert ammonia present in fish waste to nitrate. This is done by nitrifying bacteria, which are present in the biofilter. Nitrifying bacteria convert ammonia to nitrite, and then nitrite to nitrate.

Biofilters do not increase phosphorus as a nutrient for fish in water. Phosphorus is a nutrient that is essential for fish growth, but it can also be harmful if it is present in high concentrations. Biofilters remove phosphorus from water, but they do not increase it.

Therefore, only two of the statements given above are correct.

56. **Answer (a)**



Here are the correct descriptions for each of the objects in space:

- Cepheids are stars that brighten and dim periodically.
- Nebulae are giant clouds of dust and gas in space.
- Pulsars are neutron stars that are formed when massive stars run out of fuel and collapse.

Neutron stars are formed when a massive star runs out of fuel and collapses. The very central region of the star – the core – collapses, crushing together every proton and electron into a neutron. Pulsars are rotating neutron stars observed to have pulses of radiation at very regular intervals that typically range from milliseconds to seconds. Pulsars have very strong magnetic fields which funnel jets of particles out along the two magnetic poles. These accelerated particles produce very powerful beams of light. So, pair 3 is correctly matched.

57. **Answer (d)**

The correct answer is (d), Japan.

Japan has its own satellite navigation system called Quasi-Zenith Satellite System (QZSS). It is a four-satellite regional system that provides high-precision positioning and timing information in the Asia-Oceania region. QZSS is compatible with the United States' Global Positioning System (GPS) and can be used to improve the accuracy and reliability of GPS signals.

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Australia, Canada, and Israel do not have their own satellite navigation systems.

58. Answer (d)

The correct answer is (d), neither 1 nor 2.

Ballistic missiles are rocket-propelled throughout their flights, while cruise missiles are jet-propelled at subsonic or supersonic speeds. Agni-V is an intercontinental ballistic missile, while BrahMos is a medium-range supersonic cruise missile.

Ballistic missiles are launched into the air and then follow a ballistic trajectory, which is a curved path that is determined by the laws of physics. Cruise missiles, on the other hand, are powered by jet engines and fly at low altitudes, following the terrain.

Agni-V is a nuclear-capable intercontinental ballistic missile that was developed by India. It has a range of over 5,000 kilometers and can carry a payload of up to 1.5 tons. BrahMos is a supersonic cruise missile that was developed jointly by India and Russia. It has a range of over 300 kilometers and can carry a payload of up to 300 kilograms.

59. The correct answer is (c), all three.

All three statements are correct. Gold mining is a major source of mercury pollution in the world. Mercury is used to extract gold from ore, and it is released into the environment when the ore is processed. Coal-based thermal power plants also release mercury into the environment. Mercury is present in coal, and it is released when the coal is burned. There is no known safe level of exposure to mercury. Mercury is a neurotoxin, and it can cause a variety of health problems, including developmental delays, neurological problems, and kidney damage.

According to the World Health Organization, mercury is one of the top ten chemicals of major public health concern. It is a highly toxic substance that can cause serious health problems, even at low levels of exposure. Mercury is particularly dangerous for pregnant women, fetuses, and young children.

Mercury can be released into the environment from a variety of sources, including coal-fired power plants, gold mining, and the production of certain chemicals. Once in the environment, mercury can contaminate water, air, and soil. It can also accumulate in fish and other animals, which can then be consumed by humans.

Exposure to mercury can cause a variety of health problems, including:

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- Developmental delays
- Neurological problems
- Kidney damage
- Cardiovascular problems
- Reproductive problems
- Immune system problems

There is no known safe level of exposure to mercury. Even low levels of exposure can cause health problems. Therefore, it is important to avoid exposure to mercury as much as possible.

If you are concerned about mercury exposure, you can talk to your doctor about getting tested. You can also take steps to reduce your exposure to mercury, such as:

- Avoid eating fish that are high in mercury, such as swordfish, shark, and king mackerel.
- Choose canned tuna that is light in color, rather than albacore tuna.
- Avoid using products that contain mercury, such as certain thermometers and light bulbs.
- If you have a mercury filling in your tooth, talk to your dentist about having it removed.

By taking these steps, you can help protect yourself and your family from the harmful effects of mercury exposure.

60. Answer (c)

The correct answer is (c), all three.

Green hydrogen is a versatile energy source that can be used in a variety of applications. It can be used directly as a fuel for internal combustion, blended with natural gas and used as fuel for heat or power generation, or used in the hydrogen fuel cell to run vehicles.

Green hydrogen is produced by using renewable energy sources, such as solar and wind power, to split water into hydrogen and oxygen. This process is called electrolysis. Green hydrogen is a clean and sustainable energy source that does not produce greenhouse gases.

Green hydrogen has the potential to play a significant role in the transition to a clean energy future. It can be used to decarbonize a variety of sectors, including transportation, industry, and buildings. Green hydrogen can also be used to store renewable energy, which can help to address the intermittency of renewable energy sources.

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The use of green hydrogen is still in its early stages, but it has the potential to revolutionize the way we produce and consume energy. With continued investment and development, green hydrogen could become a major player in the global energy mix.

Here are some specific examples of how green hydrogen is being used today:

- In Germany, a fleet of hydrogen-powered buses is being used to transport passengers in the city of Cologne.
- In Japan, a hydrogen-powered car has been developed by Toyota.
- In the United States, a hydrogen-powered train is being tested in California.

These are just a few examples of the many ways that green hydrogen is being used around the world. With continued investment and development, green hydrogen has the potential to play a major role in the transition to a clean energy future.



61. Answer (a)

The correct answer is (a), only two.

Of the countries listed, only Hungary and Romania share a land border with Ukraine. Hungary shares a 103-mile border with Ukraine, while Romania shares a 450-mile border. The other countries listed do not share a land border with Ukraine.

Ukraine is a country in Eastern Europe. It is the second-largest country in Europe by area, after Russia, covering approximately 603,628 square kilometers (233,062 sq mi). Ukraine is bordered by Russia to the east and northeast, Belarus to the north, Poland, Slovakia, and Hungary to the west, Romania and Moldova to the southwest, and the Black Sea and Sea of Azov to the south and southeast.



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62. Answer (c)

The Earth's surface receives most of its energy in short wavelengths. The energy received by the earth is known as incoming solar radiation, which in short, is termed insolation. •The atmosphere is largely transparent to short wave solar radiation. The incoming solar radiation passes through the atmosphere before striking the earth's surface. Within the troposphere water vapour, ozone and other gases absorb much of the near infrared radiation. Therefore, option (c) is the correct answer.

63. Answer (d)

The soils of the tropical rainforest are typically nutrient-poor. The high temperature and moisture of tropical rainforests cause dead organic matter in the soil to decompose quickly. In tropical rainforests, the plants grow so fast that they quickly consume the nutrients from the soil, and the leftover nutrients are then leached away by abundant rainfall, which leaves the soil infertile. So, statement 1 is not correct and statement 2 is correct.

64. Answer (a)

The correct answer is (a), both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.

Statement-I is correct because the temperature contrast between continents and oceans is greater during summer than in winter. This is because the oceans heat up and cool down more slowly than the continents. The specific heat of water is more than that of land surface. This means that it takes more energy to raise the temperature of water than it does to raise the temperature of land. As a result, the oceans take longer to heat up and cool down than the continents.

Statement-II is the correct explanation for Statement-I because the greater specific heat of water is the reason why the oceans take longer to heat up and cool down than the continents. This leads to a greater temperature contrast between continents and oceans during summer than in winter.

65. Answer (c)

The correct answer is (c), both 1 and 2.

P waves are compressional waves, which means that the individual particles vibrate to and fro in the direction of wave propagation. S waves are shear waves, which means that the particles vibrate up and down at right angles to the direction of wave propagation.

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P waves travel faster than S waves, so they are recorded earlier on a seismograph. The difference in arrival times of P and S waves can be used to determine the location of an earthquake.

Here are some additional details about P and S waves:

- P waves can travel through solids, liquids, and gases, while S waves can only travel through solids.
- P waves are the first waves to arrive from an earthquake, followed by S waves.
- P waves are less destructive than S waves.
- P waves can be used to determine the location of an earthquake.

66. **Answer (d)**

Let's evaluate each statement:

1. None of them uses seawater.

This statement is incorrect. Some coal-based thermal power plants in India do use seawater for cooling purposes. Seawater is often used as a coolant in thermal power plants to condense steam and maintain efficient operation.

2. None of them are set up in water-stressed districts.

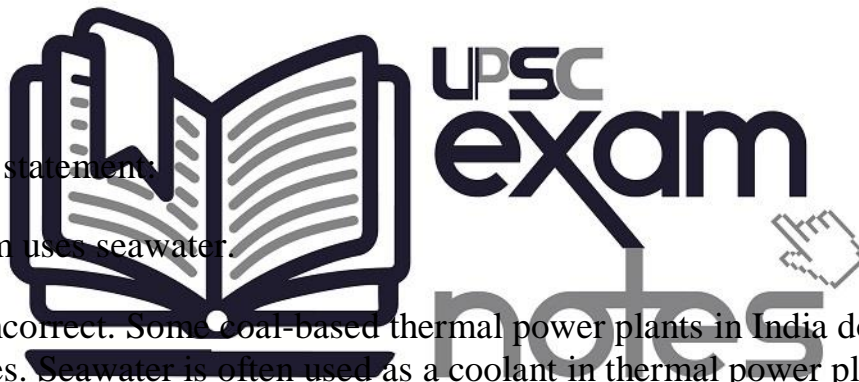
This statement is incorrect. There are coal-based thermal power plants in India that are indeed set up in water-stressed districts. Water scarcity is a significant concern in many regions of India, and it can affect the operation of power plants. Efforts are being made to promote sustainable water management practices in such areas.

3. None of them is privately owned.

This statement is incorrect. While there are several coal-based thermal power plants in India that are owned and operated by the government or public sector companies, there are also privately owned thermal power plants. The power sector in India includes both public and private ownership.

Based on the evaluation of the statements:

(d) None of the statements is correct.



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Therefore, the correct answer is (d) None.

67. Answer (a)

The Wolbachia method is a biological control method that uses the naturally occurring Wolbachia bacteria to reduce the ability of mosquitoes to transmit diseases. The method has been shown to be effective in controlling dengue, chikungunya, and Zika viruses.

The Wolbachia method is a safe and effective way to control mosquito-borne diseases. It is also a sustainable method, as it does not rely on the use of pesticides or other chemicals.

The Wolbachia method is being used in a number of countries around the world, including Australia, Brazil, and Indonesia. It has the potential to save millions of lives from mosquito-borne diseases.

Therefore, the answer is (a).



68. Answer (c)

The answer is (c). All three activities are often considered and discussed for carbon capture and sequestration.

1. Spreading finely ground basalt rock on farmlands extensively: This is a form of carbon sequestration known as enhanced weathering. Basalt rock is rich in minerals that react with carbon dioxide to form carbonate minerals. These carbonate minerals are then stored in the soil, where they can remain for hundreds or thousands of years.
2. Increasing the alkalinity of oceans by adding lime: This is another form of carbon sequestration known as ocean alkalinity enhancement. Lime is a mineral that reacts with carbon dioxide to form bicarbonate ions. These bicarbonate ions are then stored in the ocean, where they can remain for hundreds or thousands of years.
3. Capturing carbon dioxide released by various industries and pumping it into abandoned subterranean mines in the form of carbonated waters: This is a form of carbon capture and storage (CCS). CCS is a process that captures carbon dioxide emissions from power plants and other industrial sources and stores them underground. This prevents the carbon dioxide from entering the atmosphere and contributing to climate change.

All three of these activities have the potential to remove large amounts of carbon dioxide from the atmosphere. However, they are also all associated with potential risks and challenges. For example, enhanced weathering could have negative impacts on soil health,

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and ocean alkalinity enhancement could have negative impacts on marine life. CCS is also a relatively expensive technology, and there are concerns about the long-term safety of storing carbon dioxide underground.

Despite these challenges, all three of these activities are being actively researched and developed as potential solutions to climate change.

69. Answer (a)

The correct answer is (a). Aerial metagenomics is the study of genetic material that is collected from the air. This can be done by using a variety of methods, such as using filters to collect airborne particles or using drones to collect samples from high altitudes. Aerial metagenomics can be used to study a variety of things, such as the diversity of microbial life in the air, the spread of airborne diseases, and the effects of air pollution on human health.

(b) is incorrect because it refers to the study of the genetic makeup of avian species, which is not necessarily done using aerial metagenomics. (c) is incorrect because it refers to the collection of blood samples from moving animals, which is not necessarily done using aerial metagenomics. (d) is incorrect because it refers to the collection of plant and animal samples from land surfaces and water bodies, which is not necessarily done using aerial metagenomics.

70. Answer (a)

The correct answer is (a).

Microsatellite DNA is a type of DNA that consists of short, repetitive sequences of nucleotides. It is found in all living things, and it is used in a variety of applications, including studying the evolutionary relationships among various species of fauna.

Microsatellite DNA is particularly useful for studying evolutionary relationships because it is highly variable. This means that it can be used to distinguish between different species, and it can also be used to track the evolution of a species over time.

Microsatellite DNA is also used in a variety of other applications, including paternity testing, forensic science, and genetic mapping. However, it is not used to stimulate stem cells, promote clonal propagation of horticultural plants, or assess the efficacy of drugs.

71. Answer (d)

The correct answer is (d).

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Statement 1 is incorrect because the MSMED Act, 2006 defines a medium enterprise as one with investment in plant and machinery between 5 crore and 10 crore.

Statement 2 is incorrect because not all bank loans to MSMEs qualify under the priority sector. Only loans to micro and small enterprises qualify under the priority sector.

72. Answer (c)

The correct answer is (c).

Statement 1 is correct because digital currencies are not tied to any specific currency or payment system. They can be used to make payments between any two parties that have access to the internet.

Statement 2 is correct because digital currencies can be programmed to have specific features, such as a timeframe for spending them. This could be used to encourage people to spend the currency quickly, or to prevent them from hoarding it.

For example, the Chinese government has been experimenting with a digital currency called the digital yuan. The digital yuan is designed to be used for everyday transactions, and it can be used to pay for goods and services at participating merchants. The digital yuan is also programmed with a timeframe for spending it, which means that it cannot be hoarded or used for speculative purposes.

Overall, digital currencies offer a number of advantages over traditional currencies. They are faster, more efficient, and more secure. They can also be used to make payments between any two parties that have access to the internet, regardless of their location.

73. Answer (d)

The correct answer is (d). Beta is a numeric value that measures the fluctuations of a stock to changes in the overall stock market. It is a measure of the volatility of a stock relative to the market as a whole. A beta of 1 means that the stock moves in the same direction as the market, while a beta of greater than 1 means that the stock moves more than the market. A beta of less than 1 means that the stock moves less than the market.

So the answer is (d).

74. Answer (b)

In India, banks are the predominant agency for delivery of micro-credit. In 1970, Ilaben Bhat, founder member of 'SEWA' (Self Employed Women's Association) in Ahmadabad,

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had developed a concept of 'women and micro-finance'. The Annapurna Mahila Mandal' in Maharashtra and 'Working Women's Forum' in Tamilnadu and many National Bank for Agriculture and Rural Development (NABARD)-sponsored groups have followed the path laid down by 'SEWA'. 'SEWA' is a trade union of poor, self-employed women workers. So, statement 1 is not correct.

SHGs are a type of microfinance institution that provide small loans to low-income individuals, often women, who would not otherwise have access to credit. SHGs are typically formed by 10-20 people who meet regularly to save money and make loans to each other. The group members act as guarantors for each other's loans, which helps to reduce the risk of default.

SHGs have been shown to be an effective way to reduce poverty and empower women. They provide a source of credit for people who would not otherwise have access to it, and they help to build social capital and financial literacy. SHGs are also a source of employment for women, as they often provide services such as childcare and education.

The State Bank of India (SBI) is the largest commercial bank in India. It was founded in 1955 and is headquartered in Mumbai. SBI offers a wide range of banking products and services, including savings and current accounts, loans, investments, and insurance. SBI is also a major player in the microfinance sector, providing loans to SHGs.

The Regional Rural Banks (RRBs) are a type of financial institution in India. They were established in 1975 to provide banking services to rural areas. RRBs are sponsored by commercial banks and the government of India. They offer a range of banking products and services, including savings and current accounts, loans, and investments. RRBs also provide financial literacy and training programs to their customers.

The Scheduled Commercial Banks (SCBs) are a type of financial institution in India. They are regulated by the Reserve Bank of India (RBI). SCBs offer a range of banking products and services, including savings and current accounts, loans, and investments. SCBs also provide financial literacy and training programs to their customers.

SHGs are supported by a number of government and non-government organizations. The government of India provides subsidies and loans to SHGs. Non-government organizations provide training and support to SHGs.

75. Answer (d)

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Health care covers not merely medical care; all aspects like preventive and curative and rehabilitative care are given due importance. So, statement-I is not correct. •Under India's decentralized approach to health care delivery, the states are primarily responsible for organizing health services, since public health is a subject under State list of 7th Schedule. So, statement-II

76. Answer (c)

According to the United Nations' 'World Water Development Report, 2022,' India extracts more than a quarter of the world's groundwater withdrawal every year. So, statement-I is correct.

About 89% of this groundwater is used in India for irrigation. So, statement-II is not correct.

77. Answer (a)



The correct answer is (a). Only one of the statements is correct.

Statement 1 is correct. According to Article 355 of the Constitution of India, it is the duty of the Union to protect every State against external aggression and internal disturbance and to ensure that the government of every State is carried on in accordance with the provisions of this Constitution.

Statement 2 is incorrect. The Constitution of India does not exempt the States from providing legal counsel to a person being held for preventive detention. In fact, Article 22(1) of the Constitution states that every person who is arrested and detained in custody shall be produced before the nearest magistrate within a period of twenty-four hours of such arrest excluding the time necessary for the journey from the place of arrest to the court of the magistrate and no such person shall be detained in custody beyond the said period without the authority of a magistrate.

Statement 3 is also incorrect. According to Section 32 of the Prevention of Terrorism Act, 2002, a confession made by a person before a police officer not lower in rank than a Superintendent of Police and recorded by such police officer in writing, shall be admissible in the trial of such person for an offence under this Act or the rules made thereunder.

Therefore, only Statement 1 is correct.

78. Answer (d)

The correct answer is (d). Somalia has been suffering from decades of civil strife and food shortages and was in news in the recent past for its very severe famine.

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Somalia is a country located in the Horn of Africa. It has been plagued by civil war and instability since the early 1990s. This has led to widespread poverty and food insecurity. In 2011, Somalia experienced a severe famine that killed hundreds of thousands of people. The famine was caused by a combination of factors, including drought, conflict, and high food prices.

In recent years, Somalia has made some progress in improving its security situation. However, the country remains fragile and food insecurity is still a major problem. In 2022, the United Nations warned that Somalia was facing a new famine. The warning came after a severe drought hit the country, causing crops to fail and livestock to die.

The international community has responded to the crisis in Somalia by providing humanitarian aid. However, the long-term solution to the country's problems lies in addressing the root causes of the conflict and instability.



79. **Answer (C)**

The correct answer is (c). Both statements are correct.

Biodiversity Management Committees (BMCs) are local-level bodies that are responsible for the conservation and sustainable use of biological resources. They are established under the Biological Diversity Act, 2002.

The Nagoya Protocol is an international agreement that aims to ensure the fair and equitable sharing of benefits arising from the utilization of genetic resources. It was adopted in 2010 and entered into force in 2014.

BMCs play a key role in the implementation of the Nagoya Protocol in India. They are responsible for granting access to biological resources and for ensuring that benefits are shared fairly and equitably.

BMCs have a number of important functions, including:

- **Granting access to biological resources:** BMCs are responsible for granting access to biological resources for research and commercial purposes. They must ensure that access is granted in a fair and equitable manner.
- **Ensuring benefit sharing:** BMCs are responsible for ensuring that benefits arising from the utilization of biological resources are shared fairly and equitably. They must ensure that benefits are shared with the local communities that have conserved and used these resources.

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- Levying collection fees: BMCs have the power to levy collection fees on the access of biological resources within their jurisdiction. These fees are used to fund the conservation and sustainable use of biological resources.

BMCs play a vital role in the conservation and sustainable use of biological resources in India. They are key to the realization of the objectives of the Nagoya Protocol.

80. Answer (C)

The correct answer is (c). Only three of the statements are correct.

Statement 1 is incorrect. The members nominated to either House of the Parliament or the Legislative Assemblies of States are not eligible to be included in the Electoral College. Only the elected members of the Parliament and the Legislative Assemblies of the States are eligible to be included in the Electoral College.

Statement 2 is correct. The value of vote of each MLA of a State is determined by the following formula:

Value of vote of each MLA = Total number of votes of the Electoral College / Total number of elected MLAs in the State

Therefore, higher the number of elective Assembly seats, higher is the value of vote of each MLA of that State.

Statement 3 is also correct. The value of vote of each MLA of Madhya Pradesh is 196, while the value of vote of each MLA of Kerala is 141. This is because Madhya Pradesh has a higher number of elective Assembly seats than Kerala.

Statement 4 is incorrect. The value of vote of each MLA of Puducherry is not higher than that of Arunachal Pradesh. In fact, the value of vote of each MLA of Puducherry is 160, while the value of vote of each MLA of Arunachal Pradesh is 112. This is because the ratio of total population to total number of elective seats in Puducherry is lower as compared to Arunachal Pradesh

81. Answer (a)

The correct answer is (a). Alexander Rea, A. H. Longhurst, Robert Sewell, James Burgess and Walter Elliot were all associated with archaeological excavations in India.

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Alexander Rea was an archaeologist who worked for the Archaeological Survey of India. He is best known for his work on the Buddhist sites of Amaravati and Nagarjunakonda. A. H. Longhurst was also an archaeologist who worked for the Archaeological Survey of India. He is best known for his work on the Hindu temples of South India. Robert Sewell was a historian who specialized in the history of South India. He is best known for his work on the Vijayanagara Empire. James Burgess was an archaeologist who worked for the Archaeological Survey of India. He is best known for his work on the Buddhist and Hindu sites of Western India. Walter Elliot was a civil servant who served in the Madras Presidency. He is best known for his work on the history and culture of South India.

All of these men made significant contributions to the field of archaeology in India. Their work helped to uncover and preserve the rich history and culture of the country.

82. **Answer (b)**



The correct answer is (b). Only two of the pairs are correctly matched.

Pair 1 is incorrect. Besnagar is not known for a Shaivite cave shrine. It is known for a Heliodorus pillar, which is a stone column that was erected by Heliodorus, an ambassador of the Indo-Greek king Antialcidas, in the 2nd century BC. The pillar is inscribed with a dedication to the Hindu god Vishnu.

Pair 2 is correct. Bhaja is known for a Buddhist cave shrine. The shrine is located in the Bhaja Caves, which are a group of 22 rock-cut caves located in the Pune district of Maharashtra, India. The caves date back to the 2nd century BC and are some of the oldest Buddhist caves in India.

Pair 3 is also correct. Sittanavasal is known for a Jain cave shrine. The shrine is located in the Sittanavasal Caves, which are a group of 11 rock-cut caves located in the Pudukottai district of Tamil Nadu, India. The caves date back to the 2nd century AD and are some of the oldest Jain caves in India.

Therefore, only two of the pairs are correctly matched.

83. **Answer (a)**

The correct answer is (a). Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.

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Statement-I is correct because 7th August is declared as the National Handloom Day in India. This was done in 2015 by the Government of India to commemorate the launch of the Swadeshi Movement on the same day in 1905.

Statement-II is also correct because the Swadeshi Movement was a major turning point in the Indian independence struggle. It was launched in protest against the partition of Bengal by the British government. The movement called for a boycott of British goods and a promotion of Indian-made goods, including handloom products.

The Swadeshi Movement was a success in raising awareness of the importance of Indian-made goods and in promoting the use of handloom products. It also helped to unite the Indian people in their fight for independence.

Therefore, both statements are correct and statement-II is the correct explanation for statement-I

84. Answer (d)

The Flag Code of India took effect on January 26, 2002. As per Clause 2.1 of the Flag Code of India, there shall be no restriction on the display of the National Flag by members of the general public, private organizations, educational institutions etc. consistent with the dignity and honour of the National Flag.

The Flag Code of India, 2002 was amended recently, and National Flag made of polyester or machine made flag have also been allowed.

Now, the National Flag shall be made of hand-spun, hand-woven or machine-made cotton/polyester/wool/ silk/khadi bunting, as per the amended flag code.

| Flag size ^{[1][2]} | Length and width (mm) | Size of Ashoka Chakra (mm) ^[3] |
|-----------------------------|-----------------------|---|
| 1 | 6300 × 4200 | 1295 |
| 2 | 3600 × 2400 | 740 |
| 3 | 2700 × 1800 | 555 |
| 4 | 1800 × 1200 | 370 |
| 5 | 1350 × 900 | 280 |
| 6 | 900 × 600 | 185 |
| 7 | 450 × 300 | 90 ^[4] |
| 8 | 225 × 150 | 40 |
| 9 | 150 × 100 | 25 ^[4] |

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So, Statement 1 is not correct. •The National Flag shall be rectangular in shape. The ratio of the length to the height (width) of the Flag shall be 3:2. So, Statement 2 is correct. Therefore, option (d) is the correct answer.

85. Answer (c)

Constitution Day, also known as 'Samvidhan Divas', is celebrated in our country on 26th November every year to commemorate the adoption of the Constitution of India. •The Ministry of Social Justice and Empowerment on 19th November 2015 notified the decision of Government of India to celebrate the 26th day of November every year as 'Constitution Day' to promote Constitution values among citizens. So, Statement-I is correct. •Among all the committees of the Constituent Assembly, the most important committee was the Drafting Committee, set up on August 29, 1947. It was this committee that was entrusted with the task of preparing a draft of the new Constitution. It consisted of seven members. They were: Dr. B.R. Ambedkar (Chairman), N. Gopalaswamy Ayyangar, Alladi Krishnaswamy Ayyar, Dr. K.M. Munshi, Syed Mohammad Saadullah, N. Madhava Rau (He replaced B.L. Mitter who resigned due to ill-health), T.T. Krishnamachari (He replaced D.P. Khatri who died in 1948)

The Drafting Committee, after taking into consideration the proposals of the various committees, prepared the first draft of the Constitution of India, which was published in February 1948.

On 26th November 1949, the Constituent Assembly of India adopted the Constitution of India, which came into effect from 26th January 1950. So, Statement 2 is not correct. Therefore, option (c) is the correct answer.

86. Answer (c)

Statement-I: Switzerland is one of the leading exporters of gold in terms of value.

This statement is correct. Switzerland is indeed one of the leading exporters of gold in terms of value. The country has a long-standing reputation for its gold refining and trading activities.

Statement-II: Switzerland has the second largest gold reserves in the world.

This statement is incorrect. Switzerland does not have the second-largest gold reserves in the world. As of my knowledge cutoff in September 2021, the countries with the largest gold reserves include the United States, Germany, Italy, and France, among others. Switzerland's gold reserves are substantial but not among the top holdings globally.

Based on the evaluation of the statements:

(c) Statement-I is correct but Statement-II is incorrect.

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Therefore, the correct answer is (c) Statement-I is correct but Statement-II is incorrect.

87. Answer (c)

Statement-I: Recently, the United States of America (USA) and the European Union (EU) have launched the Trade and Technology Council.

This statement is correct. The United States of America (USA) and the European Union (EU) have indeed launched the Trade and Technology Council. This council aims to enhance cooperation between the USA and the EU in various areas related to trade and technology.

Statement-II: The USA and the EU claim that through this they are trying to bring technological progress and physical productivity under their control.

This statement is not mentioned in the original statement and cannot be inferred. It is not explicitly stated that the USA and the EU aim to bring technological progress and physical productivity under their control through the Trade and Technology Council.

Based on the evaluation of the statements:

(c) Statement-I is correct but Statement-II is incorrect.

Therefore, the correct answer is (c) Statement-I is correct but Statement-II is incorrect.

88. Answer (d)

As per the WTO data released in April 2019, for the year 2018, India's share in global exports for merchandise was 1.7 % and in global imports was 2.6 %. For the year 2018, for the service sector, India's share in global exports was 3.5 % and imports was 3.2 %. So, statement 1 is not correct.

Production-linked Incentive schemes are a cornerstone of the Government's push for achieving an Atmanirbhar Bharat. The objective is to make domestic manufacturing globally competitive and to create global Champions in manufacturing. The strategy behind the scheme is to offer companies incentives for incremental sales from products manufactured in India over the base year. So, statement 2 is correct.

89. Answer (a)

The correct answer is (a). Only one of the statements is correct.

The Stability and Growth Pact (SGP) is an agreement, among all of the 27 member states of the European Union, to facilitate and maintain the stability of the Economic and Monetary

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Union (EMU). Based primarily on Articles 121 and 126 of the Treaty on the Functioning of the European Union, it consists of fiscal monitoring of members by the European Commission and the Council of the European Union, and the issuing of a yearly recommendation for policy actions to ensure a full compliance with the SGP also in the medium-term.

The purpose of the pact was to ensure that fiscal discipline would be maintained and enforced in the EMU. All EU member states are automatically members of both the EMU and the SGP, as this is defined by paragraphs in the EU Treaty itself. The fiscal discipline is ensured by the SGP by requiring each Member State, to implement a fiscal policy aiming for the country to stay within the limits on government deficit (3% of GDP) and debt (60% of GDP); and in case of having a debt level above 60% it should each year decline with a satisfactory pace towards a level below.

The SGP does not make the countries of the European Union to share their infrastructure facilities or enable the countries of the European Union to share their technologies.

90. Answer (a)

The Global Compact for Safe, Orderly and Regular Migration is the first intergovernmental agreement, prepared under the auspices of the United Nations, to cover all dimensions of international migration in a holistic and comprehensive manner. It was adopted at an intergovernmental conference on migration in Marrakesh, Morocco, on 10 December 2018. So, statement 1 is correct.

Statement 2 is incorrect. The GCM is a non-binding agreement, which means that it is not legally binding on the UN member states that have adopted it. The GCM is a framework for cooperation and coordination on international migration. It provides a set of principles and objectives that UN member states can use to develop their own national policies on migration.

Key commitments of the Global Compact for Safe, Orderly and Regular Migration (GCM) include:

- Strengthening evidence-based and human rights-based policy-making and public discourse on migration;
- Minimising the adverse drivers of migration, including combatting poverty and discrimination and addressing climate and disaster-related displacement;
- Ensuring migrants' rights to information and to a legal identity;

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- Expanding and diversifying the availability of pathways for safe, orderly and regular migration, taking into account the particular needs of migrants in situations of vulnerability;
- Protecting the right to decent work and other labour rights for migrants;
- Addressing and reducing vulnerabilities and human rights violations in the context of migration;
- Protecting the right to life in the context of migration;
- Combatting smuggling and trafficking while protecting the human rights of those who have been smuggled or trafficked; »Respecting human rights at borders and conducting human rights-based and individualised screening, assessment and referral of migrants;
- Protecting the right to liberty and freedom from arbitrary detention, including by prioritising alternatives to immigration detention;
- Ensuring migrants' rights to access basic services, including health, education, and social support, without discrimination;
- Eliminating discrimination and combatting hate speech and xenophobia;
- Upholding the prohibitions of collective expulsion and refoulement for all migrants, ensuring that returns are safe and dignified and reintegration is sustainable. So, statement 3 is not correct.



91. Answer (b)

Home Guards are raised under the Home Guards Act and Rules of the States/Union Territories. They are recruited from amongst all classes of people and walks of life, who give their spare time to the organisation for betterment of the community. So, statement 1 is not correct. The role of Home Guards is to serve as an auxiliary Force to the Police in maintenance of internal security situations, help the community in any kind of emergency such as an air-raid, fire, cyclone, earthquake, epidemic etc. help in maintenance of essential services, promote communal harmony and assist the administration in protecting weaker sections, participate in socio-economic and welfare activities and perform Civil Defence duties. So, statement 2 is correct. Fifteen Border Wing Home Guards (BWHG) Battalions have been raised in the border States viz. Punjab (6 Bns.), Rajasthan (4 Bns.), Gujarat (2 Bns.) and one each Battalion for Meghalaya, Tripura and West Bengal to serve as an auxiliary to Border Security Force for preventing infiltration on the international border/coastal areas. So, statement 3 is correct.

92. Answer (b)

Official Secrets act stated that Unauthorised use of uniforms, falsification of reports, forgery, personation, and false documents.—(1) If any person for the purpose of gaining admission or

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of assisting any other person to gain admission to a prohibited place or for any other purpose prejudicial to the safety of the State wears police or military uniform shall be guilty. So, pair 1 is correctly matched.

Official secrets act stated that No person in the vicinity of any prohibited place shall obstruct, knowingly mislead or otherwise interfere with or impede, any police officer, or any member of engaged on guard, Sentry, patrol, or other similar duty in relation to the prohibited place. So, pair 2 is not correctly matched.

The Arms (Amendment) Act, 2019 ensures that those using firearms in a rash or negligent manner in celebratory gunfire, endangering human life or personal safety of others, shall be punishable with an imprisonment to two years or with fine which may extend to Rs one lakh or with both. So, pair 3 correctly matched.

93. Answer (d)

The given pairs are not correctly matched with the regions often mentioned in the news and their corresponding reasons for being in the news. Here's the correct information:

1. North Kivu and Ituri: These regions are located in the Democratic Republic of Congo and have been in the news due to conflicts and violence involving various armed groups in the region, including ethnic tensions, political instability, and resource disputes.
2. Nagorno-Karabakh: This region is located in the South Caucasus and has been in the news primarily due to the conflict between Armenia and Azerbaijan over territorial disputes and control of the region. It has no direct connection to the insurgency in Mozambique.
3. Kherson and Zaporizhzhia: These regions are located in Ukraine and have not been significantly mentioned in the news related to a dispute between Israel and Lebanon. There may have been other regions or countries involved in the Israel-Lebanon dispute, such as Israel and Lebanon themselves.

Therefore, none of the given pairs are correctly matched.

94. Answer (c)

The development of open, friendly relations between Israel and some Gulf Arab states has emerged as a significant new dynamic of the 21st century Middle East. ● Although the diplomatic accords signed by the United Arab Emirates (UAE) and Bahrain with Israel in 2020 constituted a breakthrough in relations, the lines of communication and cooperation between the Gulf states and Israel are not new. Multiple countries in the region, including Qatar, Bahrain, and Oman, established connections with Israel in the 1990s after the

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Palestine Liberation Organization (PLO) and Israel signed the Oslo Accords. So, statement 1 is correct.

The Arab Peace Initiative is a comprehensive peace plan which was proposed in 2002 by then-Crown Prince Abdullah of Saudi Arabia. The Initiative calls for an end to the conflict between Israel and the Palestinians and the normalization of relations between Israel and the entire Arab world, in exchange for an Israeli withdrawal from the areas gained by Israel during the 1967 Six Day War and a “just settlement” to the issue of Palestinian refugees. The Arab League endorsed the plan in March 2002, and readopted it in March 2007. •However, The Israeli government rejected the initiative immediately, calling it a “non-starter,” though the Quartet on the Middle East endorsed the Initiative in 2003. So, statement 2 is not correct.

95. Answer (b)

Major Dhyan Chand Khel Ratna Award: The recipient(s) is/are selected by a committee constituted by the Ministry and is honoured for their “spectacular and most outstanding performance in the field of

sports over a period of four years” at international level. So, pair 1 is correctly matched.

•Arjun Award: The Arjuna Award, officially known as Arjuna Awards for Outstanding Performance in Sports and Games, is the second-highest sporting honour of India. Dhyan chand award is the lifetime achievement sporting honour of India. So, pair 2 is not correctly matched. Dronacharya Award is given to coaches for doing outstanding and meritorious work on a consistent basis and enabling sportspersons to excel in International events. So, pair 3 is correctly matched.

‘Rashtriya Khel Protsahan Puruskar’ is given to corporate entities (both in private and public sector), Sports Control Boards, NGOs, including sports bodies at the State and National level, who have played a visible role in the area of sports promotion and development. So, pair 4 is not correctly matched.

96. Answer (b)

For the 1st time ever, the world’s biggest chess event is happening in India. Chennai is hosting the 44th Chess Olympiad. So, statement 1 is correct.

The Official Mascot of 44th Chess Olympiad is ‘Thambi’. The word ‘Thambi’ in Tamil language means - little or younger brother. So, statement 2 is correct.

1st place in the Open section: Hamilton-Russel Cup. So, statement 3 is not correct.

1st place in the Women’s section: Vera Menchik Cup. So, statement 4 is not correct.

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97. Answer (d)

1. Donbas: Donbas is not located in Syria. The Donbas region refers to the conflict zone in Eastern Ukraine, specifically in the Donetsk and Luhansk regions. Therefore, the pair "Donbas: Syria" is incorrect.
2. Kachin: Kachin is not located in Ethiopia. Kachin is a state located in northern Myanmar (Burma). Therefore, the pair "Kachin: Ethiopia" is incorrect.
3. Tigray: Tigray is not located in North Yemen. Tigray is a region in northern Ethiopia. Therefore, the pair "Tigray: North Yemen" is incorrect.

Based on the information provided, none of the pairs are correctly matched. Therefore, the correct answer is (d) None.

98. Answer (d)

The correct answer is (d) Successful coups.

Chad, Guinea, Mali, and Sudan have all experienced successful coups in recent years.

In Chad, President Idriss Déby was killed in battle in April 2021, and his son, Mahamat Déby Itno, took power in a military coup.

In Guinea, President Alpha Condé was overthrown in a coup in September 2021.

In Mali, President Ibrahim Boubacar Keïta was overthrown in a coup in August 2020.

In Sudan, President Omar al-Bashir was overthrown in a coup in April 2019.

The coups in Chad, Guinea, Mali, and Sudan have all been met with international condemnation. The African Union has suspended all four countries from its membership. The United Nations has also condemned the coups and called for the restoration of civilian rule.

The coups in Chad, Guinea, Mali, and Sudan have all been caused by a combination of factors, including political instability, economic hardship, and corruption. The coups have also been exacerbated by the COVID-19 pandemic, which has caused economic hardship and social unrest in many countries.

The coups in Chad, Guinea, Mali, and Sudan have all had a negative impact on the region. The coups have led to increased instability and violence. The coups have also made it more difficult for the international community to provide aid and assistance to the region.

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99. Answer (c)

The correct answer is (c) All three.

Green hydrogen is a type of hydrogen that is produced using renewable energy sources, such as solar and wind power. This makes it a more sustainable option than traditional hydrogen, which is produced using fossil fuels.

Green hydrogen can be used to decarbonize a variety of industries, including fertilizer plants, oil refineries, and steel plants.

In fertilizer plants, green hydrogen can be used to produce ammonia, which is a key ingredient in fertilizers. This can help to reduce the emissions associated with fertilizer production.

In oil refineries, green hydrogen can be used to produce cleaner fuels, such as renewable diesel and sustainable aviation fuel. This can help to reduce the emissions associated with transportation.

In steel plants, green hydrogen can be used to produce steel without using coal. This can help to reduce the emissions associated with steel production.

Green hydrogen is a promising technology that has the potential to decarbonize a variety of industries. However, it is still in its early stages of development and there are a number of challenges that need to be addressed before it can be widely adopted.

One of the biggest challenges is the cost of green hydrogen. Green hydrogen is currently more expensive than traditional hydrogen, but the cost is expected to come down as the technology matures.

Another challenge is the infrastructure needed to produce, store, and transport green hydrogen. This infrastructure is not yet in place, but it is being developed.

Despite the challenges, green hydrogen is a promising technology that has the potential to decarbonize a variety of industries. With continued development, green hydrogen could play a significant role in the fight against climate change.

100. Answer (c)

The correct answer is (c) Both 1 and 2.

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The G-20 was originally established in 1999 as a forum for the finance ministers and central bank governors of the world's major economies to discuss international economic and financial issues. The G-20 has since expanded to include the heads of state or government of the G-20 countries, and its agenda has broadened to include a range of global issues, such as climate change, terrorism, and global health.

Digital public infrastructure is one of India's G-20 priorities. India has made significant progress in developing digital public infrastructure, such as the Unified Payments Interface (UPI) and the Aadhaar card. India is also working to develop a national digital health infrastructure and a national digital education infrastructure.

India's G-20 priorities are in line with the G-20's overall agenda of promoting global economic growth and stability. India's focus on digital public infrastructure is particularly relevant in the context of the COVID-19 pandemic, which has highlighted the importance of digital connectivity and access to digital services.

