

1. The terms 'Special Safeguard Mechanism', 'National Treatment', 'Rules of Origin' are heard in the context of which of the following?
- (a) Shanghai Cooperation Organization (SCO)
 - (b) Financial Action Task Force (FATF)
 - (c) World Trade Organization (WTO)
 - (d) The World Bank (WB)

Answer:- C

Explanation:-

All the given terms are related to the WTO.

- SSM (Special Safeguard Mechanism): It's a measure designed to protect poor farmers by allowing countries to impose a special tariff on certain agricultural goods in the event of an import surge or price fall. For example, if the USA sends cheap corn to India, Then India can put tariff barrier (i.e. increasing import duty on American Corn) so that prices of imported corn become high again.
 - National treatment is a basic principle of GATT/WTO that prohibits discrimination between imported and domestically produced goods with respect to internal taxation or other government regulation.
 - Rules of origin are used to determine the country of origin of a product for purposes of international trade. There are two common types of rules of origin depending upon the application, the preferential and non-preferential rules of origin.
2. Which of the following statements correctly explain the impact of change in Exchange rate on Overall India's Economic stability?
- 1. The incremental exchange rate positively affects the number of foreign tourists.
 - 2. Export is likely to increase due to incremental exchange rate.
 - 3. The exchange rate has huge influence on consumption.

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) 1 and 3 only

Answer:- A

Explanation:-

The volatility of the exchange rate is a crucial issue in the emerging tourism market. As a matter of fact, the incremental exchange rate positively affects the number of foreign tourists and conduces to facilitate the tourism market. **Hence, statement 1 is correct.**

Export is likely to increase attributes to the appreciation of the local currency. **Hence, statement 2 is correct.**

It is suggested that the exchange rate also has some influence on consumption. Although the depreciation of local currency brings less competitive to a country and expand the export, it has some influence on consumption. **Hence, statement 3 is incorrect.**

3. Consider the following impacts of changes in interest rate by US Fed on emerging market like India.
1. If interest rates in US increase, RBI will therefore have to raise interest rates in India to prevent FPI outflows.
 2. If interest rates in US increase, US dollar will strengthen further then rupee will decline.
 3. Situation of 'Carry trade' can be observed in Indian capital market

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- D

Explanation:-

If interest rates in US increase, the spread between US and Indian government bonds will narrow causing global funds to pull money out of Indian G-secs. RBI will therefore have to raise interest rates in India to prevent FPI outflows from Indian bond market. **Hence, statement 1 is correct**

The move will impact rupee too:

The US dollar will strengthen further as interest rates of dollar denominated securities begin moving higher. This will make rupee decline. If FPIs continue to pull money out of stock and bond markets that will weaken the rupee too. If global risk aversion increases, money is typically pulled out of riskier assets such as emerging market assets in to safe havens such as gold and US treasury instruments, impacting rupee. **Hence, statement 2 is correct.**

The reduction in funds infused by the Fed and increase in fed funds rate will impact the availability and cost of overseas finance for Indian companies.

The indirect impact is of foreign portfolio flows in to Indian equity and bond markets.

Global investors borrow in currencies with zero or low interest rates to invest in assets across the world. This is called carry trade, which is partly responsible for the raging rally in stocks in India and elsewhere. As rates begin moving up, the carry trade can reverse causing global sell-off. **Hence, statement 3 is correct.**

4. With reference to the recent 'G20-Summit', which of the following statements are correct?
1. G20-summit of 2022 endorsed a global motto of 'Recover together, Recover stronger'.
 2. Bali will host the 2023 summit

Which of the following statements is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- A

Explanation:-

The 2022 G20 Bali summit was the seventeenth meeting of Group of Twenty (G20), which was held in Nusa Dua, Bali, Indonesia on 15–16 November 2022. Endorsing the motto of 'Recover together, Recover stronger'. **Hence, statement 1 is correct.**

Initially, Indonesia was slated to host the G20 Summit in 2023. However, as Indonesia will also hold the Chairmanship of ASEAN in 2023, India which was slated to hold the summit in 2022 agreed to exchange presidency timings with Indonesia. "Indonesia will hold the G20 Presidency in DEC 2022 while India will hold the Presidency a year after. **Hence, statement 2 is incorrect.**



5. With reference to the Indian economy, consider the following statements:
1. Inflation-Indexed bonds are issued by Central government
 2. Inflation-Indexed bonds can be helpful for government to reduce overall borrowing cost
 3. The interest received as well as capital gains on IIBs are not taxable.

Select the INCORRECT answer from the code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- C

Explanation:-

Inflation-indexed bonds in India were issued by the Reserve Bank of India (RBI) in 2013 and were benchmarked to Wholesale Price Index (WPI). Inflation-indexed bonds are financial instruments that attempt to protect the bonds' purchasing power by tying interest and principal payments to an index of price changes. Indexed bonds include two types of compensation, a real rate of return plus a compensation for the erosion of purchasing power. Inflation component on principal will not be paid with interest but the same would be adjusted in the principal by multiplying principal with index ratio (IR). **Hence, statement 1 is incorrect.**

Economists have argued that inflation indexed bonds could reduce government borrowing costs. If the market overestimates future inflation, government will reduce borrowing costs by issuing inflation indexed bonds rather than nominal bonds. This may occur because, for example, investors' expectations are not completely forward-looking or rational. Alternatively, the government, because it is able to influence inflation through its policies, may have better information about the future course of inflation, or perhaps has more faith in its commitment to contain it than the public does. In these cases a treasury can lower its costs by issuing indexed bonds. **Hence, statement 2 is correct.**

Extant tax provisions will be applicable on interest payment and capital gains on IIBs. There will be no special tax treatment for these bonds. **Hence, statement 3 is incorrect.**

6. With reference to the Indian economy, which are the following are components of Infrastructure.

- 1. Sanitary system**
- 2. Financial institutions**
- 3. Telecommunication facilities**
- 4. Educational system**

Select the correct answer from code given below:

- (a) 2, 3 and 4 only**
- (b) 2 and 4 only**
- (c) 1 and 3 only**
- (d) 1, 2, 3 and 4.**

Answer:- D

Explanation:-

Infrastructure refers to the core elements of economic and social change that serve as support systems to the production activities in the economy. These elements include the following:

1. Roads
2. Railways
3. Telecommunication facilities
4. Educational system including schools and colleges
5. Health system including hospitals
6. Sanitary system including clean drinking water facilities
7. Monetary system including banks, insurance, and other financial institutions

7. When the following situation 'It states that individuals try to save more during an economic recession, which essentially leads to a fall in aggregate demand and hence in economic growth' occurs in any economy it is called as..

- (a) Deep recession
- (b) Paradox of thrift
- (c) Dividend signaling
- (d) Philips curve

Answer:- B

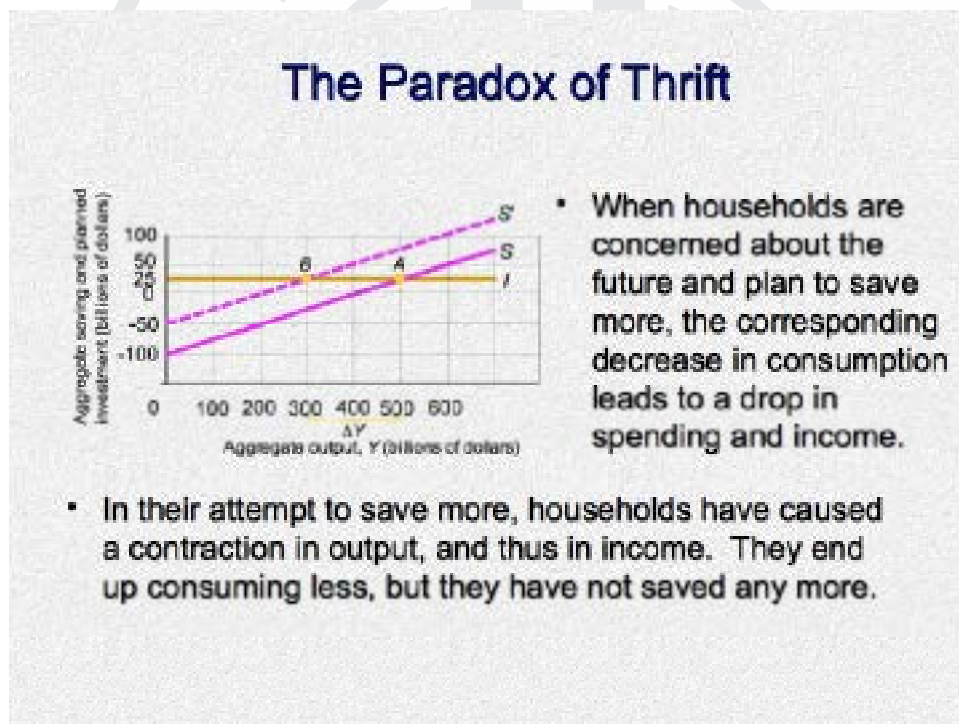
Explanation:-

Definition: Paradox of thrift was popularized by the renowned economist John Maynard Keynes.

It states that individuals try to save more during an economic recession, which essentially leads to a fall in aggregate demand and hence in economic growth. Such a situation is harmful for everybody as investments give lower returns than normal. **Hence, option 2 is correct**

Description: Keynes further said that such a mass increase in savings eventually hurts the economy as a whole.

This theory was heavily criticized by non-Keynesian economists on the ground that an increase in savings allows banks to lend more. This will make interest rates go down and lead to an increase in lending and, therefore, spending.



8. With reference to the capital and revenue expenditure, which of the following statements is/are correct?

1. Debt financing of central government can only be done on structured loan.
2. Upgrading a software and buying a computer equipment falls under capital expenditure.

Which of the following statements is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:-B

Explanation:-

Capital expenditures (CapEx) are funds used by a company to acquire, upgrade, and maintain physical assets such as property, plants, buildings, technology, or equipment. CapEx is often used to undertake new projects or investments by a company. Costs to upgrade or purchase software, investing in new technology and computer equipment, are considered part of Capital expenditure. As they are often employed to improve operational efficiency, increase revenue in the long term, or make improvements to the existing assets of a company. **Hence, statement 2 is correct.**

When a Government borrows money to be paid back at a future date with interest it is known as debt financing. It occurs when a firm sells fixed income products, such as bonds, bills, or notes. It could be in the form of a secured as well as an unsecured loan. Debt financing is the opposite of equity financing, which entails issuing stock to raise money. Both debt financing and equity financing are considered as part of capital receipts for the government, as capital receipts are receipts that create liabilities or reduce financial assets. Funds from these would be used by company for capital expenditure such as to grow or expand its operations. **Hence, statement 1 is incorrect.**

9. **With reference to FDI in e-commerce firms operating in India, which of the following statements is/are INCORRECT?**
1. **FDI is permitted in inventory based model of e-commerce.**
 2. **Ownership or control over the inventory, completely lies with the e-commerce entity.**
 3. **In Marketplace based model of e-commerce capital received can only be used to build physical infrastructure.**

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- D

Explanation:-

Marketplace based model of e-commerce means providing an IT platform by an e-commerce entity on a digital & electronic network to act as a facilitator between buyer and seller. On other hand, Inventory based model of e-commerce means an e-commerce activity where inventory of goods and services is owned by e-commerce entity and is sold to the consumers directly. However, FDI is not permitted in inventory based model of e-commerce. **Hence, statement 1 and 3 are incorrect.**

According to guidelines for FDI (Foreign Direct Investment) on E-Commerce, E-commerce entity providing a marketplace will not exercise ownership or control over the inventory i.e. goods purported to be sold. Such an ownership or control over the inventory will render the

business into inventory based model. Inventory of a vendor will be deemed to be controlled by e-commerce marketplace entity if more than 25% of purchases of such vendor are from the marketplace entity or its group companies. **Hence, statement 2 is incorrect.**

First Step to FDI in e-Commerce

Eight Things DIPP Wants to Know

- Should FDI be allowed in B2C e-commerce?
- Should it be open for all products or only for non-food products?
- Should there be a minimum capitalisation limit?
- Should there be a domestic sourcing limit and how much?
- How will retail sale under MBRT be restricted to states that have agreed to open front-end stores?
- What should the entry routes and caps be in FDI in B2C e-commerce companies? Should it be automatic up to 50%?
- What are likely benefits to Indian economy?
- What should B2C e-commerce encompass: goods, services, intellectual property?

What is at Stake

RAPIDLY GROWING E-COMMERCE MARKET (\$B)

Year	Market Size (\$B)
2009	3.8
2012	9.5
2013	12.5

DIGITAL-COMMERCE (AMAJ-IMRE) (2013)

E-TAILING SHARE

Year	Share (%)
2011	11%
2012	16%

EXPECTED CONTRIBUTION OF E-COMMERCE TO GDP BY 2020

4%

MIDDLE CLASS IN SEVERAL DEVELOPING COUNTRIES INCLUDING INDIA, RAPIDLY EMBRACING ONLINE SHOPPING

INDIA HAS 137 MILLION INTERNET USERS WITH PENETRATION OF 11%

- 71% of the transactions of consumer e-commerce industry relate to travel
- Low Internet penetration is holding back rapid growth in India

Case for FDI

- Provide capital for infrastructure development
- Impetus to manufacturing sector
- Increased outreach and adoption of global best practices
- Improved customer service

Case Against FDI

- It goes against the FDI policy in multi-brand retail
- It may impact small-time brick and mortar stores
- FDI will have adverse impact on domestic industry
- MNCs may dump their cheaper products in the market

10. Which of the following statement(s) is/are correct about government securities?
1. These are issued by the Central or State governments to take loans mainly from the commercial banks.
 2. The RBI regulates the government securities market by arranging their primary auctions.
 3. The RBI in consultation with the government fixes the interest rates on these securities.
 4. The commercial banks are statutorily required to buy a minimum worth of these securities.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 1, 2 and 4 only
- (d) 1, 2, 3 and 4

Answer:- C

Explanation:-

A government security is a bond issued by a government authority with a promise of repayment upon maturity. These securities are considered low-risk, since they are backed by the taxing power of the government. In India, RBI regulates the government securities market by arranging their primary auctions. The commercial banks are statutorily required to buy a minimum worth of these securities. **Hence, statements 1, 2 and 4 are correct.**

Interest rates on government securities are market determined and not fixed by either RBI or government. **Hence, statement 3 is incorrect.**

11. With reference to contempt of court, consider the following statements:
1. The consent of the Attorney General of India is mandatory when a private citizen wants to initiate a case of contempt of court against a person.
 2. Constitution empowers the Supreme Court to initiate contempt cases on its own.
 3. The Attorney General brings in a motion before the Supreme Court and High Courts for initiating a case of criminal contempt.

Select the correct statement using the code given below :

- (a) 2 and 3 only
- (b) 2 only
- (c) 3 only
- (d) 1 only

Answer:-A

Explanation:-

The AG's consent is mandatory when a private citizen wants to initiate a case of contempt of court against a person. However, when the court itself initiates a contempt of court case the AG's consent is not required. This is because the court is exercising its inherent powers under the Constitution to punish for contempt and such Constitutional powers cannot be restricted because the AG declined to grant consent. **Hence, statement 1 is incorrect.**

Article 129 of the Constitution gives the Supreme Court the power to initiate contempt cases on its own, independent of the motion brought before it by the AG or with the consent of the AG. **Hence statement 2 is correct.**

Section 15 of the Contempt of Courts Act, 1971 describes the procedure on how a case for contempt of court can be initiated. The Attorney General may bring in a motion before the court for initiating a case of criminal contempt. The motion for initiating the case will have to specify the contempt of which the person charged is alleged to be guilty. **Hence statement 3 is correct.**

12. With reference to Attorney general and Advocate general in India, consider the following statements?

- 1. Attorney General is the first legal officer of the country**
- 2. Both holds office at the pleasure of president, tenure is not fixed by Constitution**
- 3. Attorney general submits his resignation to president whereas Advocate general submits his resignation to governor.**

Select the correct answer from code given below

- (a) 1 and 2 only**
- (b) 2 and 3 only**
- (c) 1 and 3 only**
- (d) 1, 2 and 3**

Answer:- C

Explanation:-

Attorney General

The Attorney General is the first legal officer of the country. He is appointed under Art 76 of the Indian Constitution. Appointed by president. Holds office at the pleasure of president tenure is not fixed by Constitution. Resignation to be submitted to President Assisted by a Solicitor General and 4 Additional Solicitors General. **Hence, statement 1 is correct.**

Advocate General

Advocate general is the highest law officer in the state. He is appointed under Art 165 of the Indian Constitution. Appointed by Governor. No fixed tenure holds office at the pleasure of Governor. **Hence, statement 2 is incorrect.** Resignation to be submitted to Governor. Assisted by Additional Advocate Generals. **Hence, statement 3 is correct.**

13. With reference to amendments to Indian Constitution, consider the following statements.

- 1. Service tax to be levied by Union and collected and appropriated by the Union and the States said by 92nd amendment act.**
- 2. Multi-member National Commission for SC/ST was established by 69th amendment act.**
- 3. Constitutional Status was granted to National Commission for Backward Classes (NCBC) by 95th amendment act.**

Select the INCORRECT answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- D

Explanation:-

88th Amendment Act, 2003:- Service tax to be levied by Union and collected and appropriated by the Union and the States said by 92nd amendment act. **Hence, statement 1 is incorrect.**

65th Amendment Act, 1990:- Multi-member National Commission for SC/ST was established and the office of a special officer for SCs and STs was removed. **Hence, statement 2 is incorrect.**

102nd Amendment Act, 2018:- Constitutional Status was granted to National Commission for Backward Classes (NCBC). **Hence, statement 3 is incorrect.**

14. With reference to 'the powers and functions of the Union Council of Ministers in the Indian Parliamentary system', which of the following statements are correct?

- 1. Every Minister shall have the right to speak, vote and take part in the proceedings of either House, any joint sitting of the Houses and any Committee of Parliament of which he may be named a member.**
- 2. The nature of advice tendered by Ministers to the President cannot be enquired by any Court of law.**
- 3. Even after the dissolution of the Lok Sabha, the Council of Ministers does not cease to hold office.**

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- B

Explanation:-

Article 88—Rights of Ministers as Respects the Houses Every Minister shall have the right to speak and take part in the proceedings of either House, any joint sitting of the Houses and any Committee of the Parliament of which he may be named a member. But he shall not be entitled to vote except in the House of which he is a member. **Hence, statement 1 is incorrect.**

Article 74 provides for a Council of Ministers with the Prime Minister at the head to aid and advice the President in the exercise of his functions. Further, the nature of advice tendered by the Ministers to the President cannot be enquired by any Court of law. This provision emphasises the intimate and the confidential relationship between the President and the Ministers. **Hence, statement 2 is correct.**

In 1971, the Supreme Court held that 'even after the dissolution of the Lok Sabha, the Council of Ministers does not cease to hold office. Article 74 is mandatory and, therefore, the President cannot exercise the executive power without the aid and advice of the Council of Ministers. Any exercise of the executive power without the aid and advice will be unconstitutional as being violative of Article 74'. **Hence, statement 3 is correct.**

15. With respect to the relations between the Indian President and the Union Council of Ministers, consider the following statements:

1. The 42nd Constitutional Amendment Act 1976 made the advice of the Council of Ministers constitutionally binding on the President.
2. The 44th Constitutional Amendment Act 1978 allowed the President to send back such an advice for reconsideration of the Council of Ministers once.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- C

Explanation:-

Before the 42nd Constitutional Amendment Act, 1976 there was no provision in the Constitution that made the advice of the Union Council of Ministers obligatory to the President. The 42nd Constitutional Amendment Act 1976 made the advice of the Council of Ministers binding on the President. **Hence, statement 1 is correct.**

The 44th Constitutional Amendment Act, 1978 added a provision for the President to send back the advice once for reconsideration. However, the President has to act as per the reconsidered advice of the Union Council of Ministers. **Hence, statement 2 is correct.**

16. With reference to the provisions of the 91st Constitutional Amendment Act 2003, which of the following statements are correct?

1. The total number of Ministers, including the Prime Minister, in the Union Council of Ministers shall not exceed 15% of the total strength of the Lok Sabha
2. A member of either House of the Parliament belonging to any political party, who is disqualified on the ground of defection, shall also be disqualified to be appointed as a Minister.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- C

Explanation:-

The 91st Constitutional Amendment Act 2003 made the following provisions to limit the size of Council of Ministers, to debar defectors from holding public offices, and to strengthen the Anti-Defection law:

1. The total number of Ministers, including the Prime Minister, in the Union Council of Ministers shall not exceed 15% of the total strength of the Lok Sabha (Article 75(1A)). **Hence, statement 1 is correct.**
2. A member of either House of the Parliament belonging to any political party who is disqualified on the ground of defection shall also be disqualified to be appointed as a Minister (Article 75(1B)). **Hence, statement 2 is correct.**

17. With reference to the Judges of the Supreme Court of India, consider the following statements:

1. The Indian Constitution prescribes a minimum age for a person to be appointed as a Judge of the Supreme Court.
2. A Supreme Court Judge can be removed by the President when the Parliament passes a motion to that effect by a special majority.
3. The ground mentioned for the removal of a Supreme Court Judge, in the Indian Constitution, is 'incapacity' or 'proved misbehaviour' only.

Select the correct statements using the code given below

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer:-C

Explanation:-

The Constitution does not prescribe a minimum age for appointment of a person to the Supreme Court (SC) as a Judge. **Hence, statement 1 is incorrect.**

The motion for the removal of the SC Judge has to be passed by special majority by the Parliament. According to the Article 124(4) of the Constitution, the President can remove a Judge when the Parliament passes a motion with a majority of the total membership of each House in favour of his removal and not less than two thirds of the members of each House present and voting. **Hence, statement 2 is correct.**

The Constitution provides only two grounds for removal of the Supreme Court Judge; 'proved misbehaviour' or 'incapacity.' **Hence, statement 3 is correct.**

18. Consider the following:

Assertion: The Writ Jurisdiction of the Supreme Court is narrower than that of the High Courts.

Reason: The Supreme Court can issue writs only for the enforcement of the Fundamental Rights and not in the case of breach of ordinary legal right.

Select the correct answer using the code given below:

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Assertion is false but Reason is true.

Answer:- A

Explanation:-

The High Court is empowered to issue writs for the enforcement of Fundamental Rights, and also for any other purpose, i.e. ordinary legal rights of the citizen. Hence, this widens the writ jurisdiction of the High Courts as compared to the Supreme Court, whose writ jurisdiction is limited to the enforcement of the Fundamental Rights only. Hence, both Assertion and Reason are true and Reason is the correct explanation of Assertion

19. The Ayushman Bharat scheme will subsume which among the following central schemes?

1. Rashtriya Swasthya Bima Yojana (RSBY)
2. Central Government Health Scheme (CGHS)
3. Senior Citizen Health Insurance Scheme (SCHIS)

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 1 and 2 only

Answer:-C

Explanation:-

The scheme will subsume the centrally sponsored schemes-Rashtriya Swasthya Bima Yojana (RSBY) and the Senior Citizen Health Insurance Scheme (SCHIS).

20. The Leader of the Lower House of the Indian Parliament is:

- (a) The Speaker
- (b) The President
- (c) The Prime Minister, when he is a Member of the Lok Sabha
- (d) The Leader of Opposition in the Lok Sabha

Answer:- C

Explanation:-

- The Prime Minister is the Leader of the Lok Sabha, when he is the member of the Lok Sabha. In this capacity, he enjoys the following powers:
 - i. Advising the President with regard to summoning and proroguing the sessions of the Parliament.
 - ii. Recommending dissolution of the Lok Sabha to the President at any time.
 - iii. Announcing government policies on the floor of the House.

Hence, option C is the correct answer.

The Opposition Leader is also known as the 'alternative Prime Minister'.

The Speaker is the presiding officer of the Lok Sabha.

The President is the nominal head of the Indian State

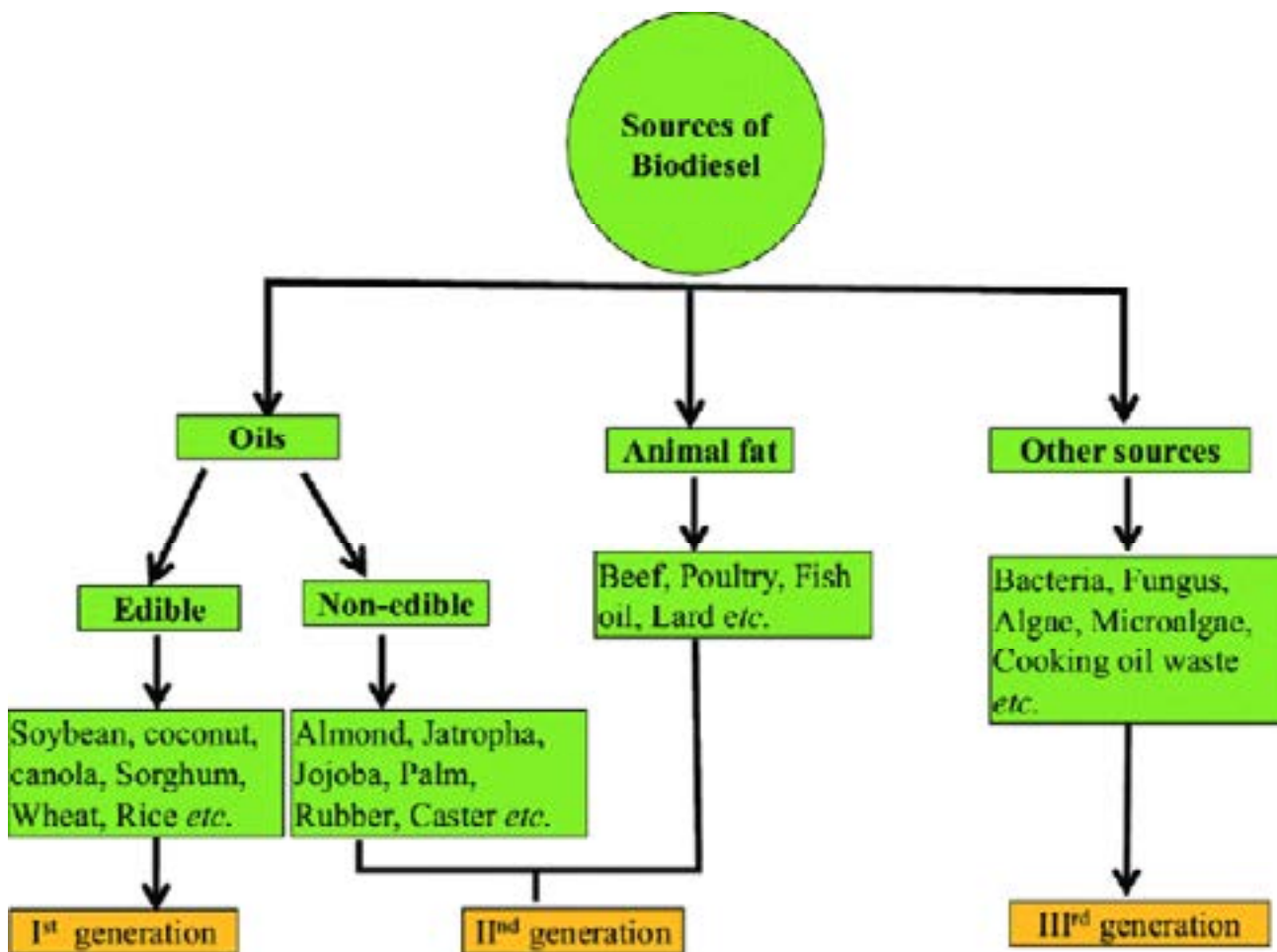
21. Which of the following crop is NOT the source of Biodiesel?

- (a) Soybeans
- (b) Sugarcane
- (c) Coconut
- (d) Candlenut

Answer:-B

Explanation:-

Tropical oilseed trees such as oil palm and coconut are used as biodiesel feedstocks in some parts of the world. Other warm climate feedstocks, such as jatropha, soybeans, croton, candlenut, and tallow tree, are also being researched as biodiesel feedstocks. Hence, option 2 is incorrect.



22. With reference to Bio-dynamic farming, consider the following statements.

1. The farm is considered as living organism that interacts with the environment.
2. Planting and Sowing crops depends on the moon and stars' position.
3. It also stresses on spirituality.

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- D

Explanation:-

- Biodynamic is a combination of two Greek words: "bios," which means life, and "dynamos," which means energy. In biodynamic agriculture (BDA), the farm is considered an autonomous and living organism that interacts with the environment to build healthy and living soil and produce healthy and nutritious food. **Hence, statement 1 is correct.**
- It stresses spirituality and follows a calendar for planting and sowing crops dependent on the moon and stars' position. **Hence, statements 2 and 3 are correct.**
- Biodynamic farming first originated in the context of anthroposophy. It was developed by Rudolf Steiner in 1924 at Koberwitz as part of a series of lectures for farmers: "Spiritual Foundations for a Renewal of Agriculture: A Series of Lectures."

The biodynamic farming system mainly works on the relationship between plant growth and cosmic rhythms and emphasizes the importance of maintaining sustainable.

23. Consider the following pairs :

River :: Lake Location (African Continent)

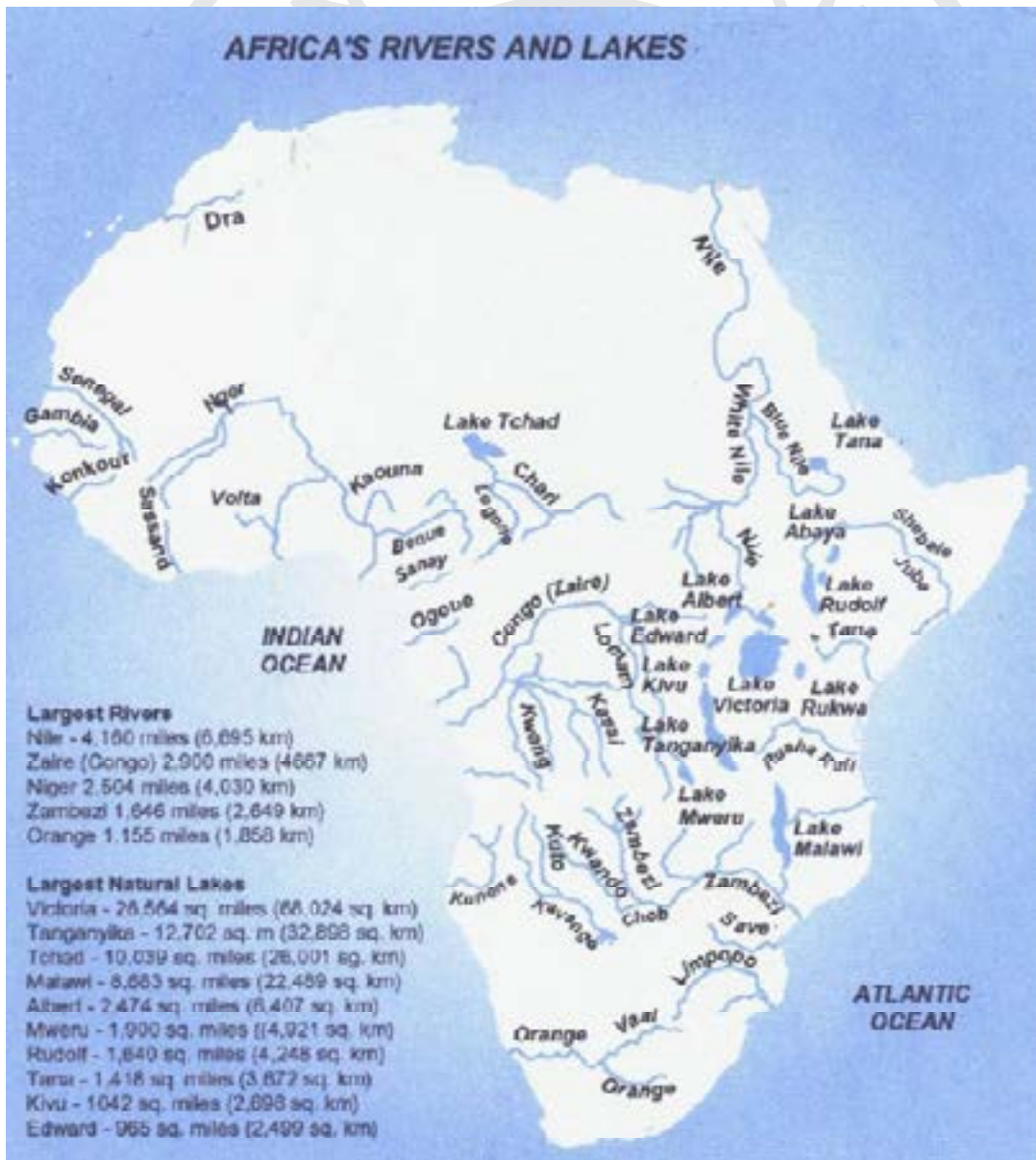
1. River Blue Nile- Lake Victoria
2. River Congo- Lake tanganyika
3. River Charl- Lake Chad
4. River Zambezi- Lake Nyasa

How many pairs given above are correctly matched ?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

Answer:- D

Explanation:-



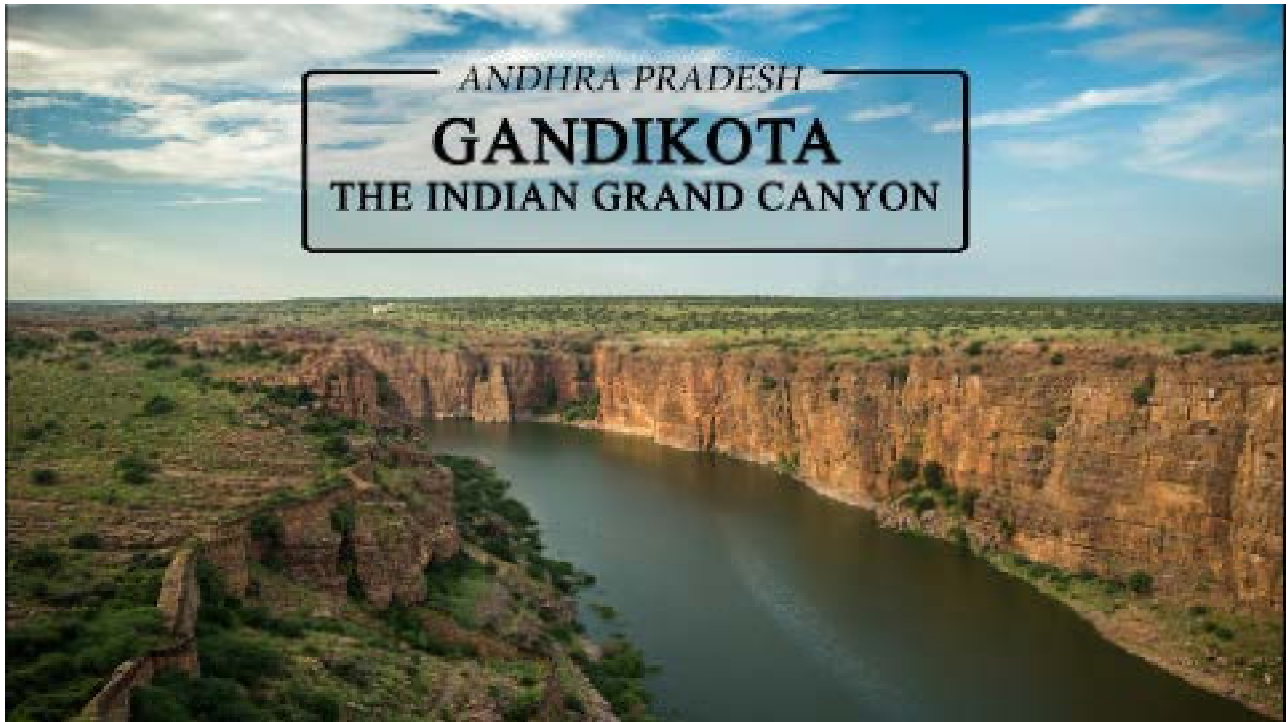
24. Gandikota Grand Canyon of India is located in which state?

- (a) Madhya Pradesh
- (b) Rajasthan
- (c) Andhra Pradesh
- (d) Meghalaya

Answer:- C

Explanation:-

Gandikota is a village and famous for the hidden grand canyon of India in Kadapa district Andhra Pradesh. The picturesque Gandikota canyon lies on the banks of the Penna river near the ruin Gandikota fort.



25. Consider the following pairs :

Mountain Peaks in India :: Associated with

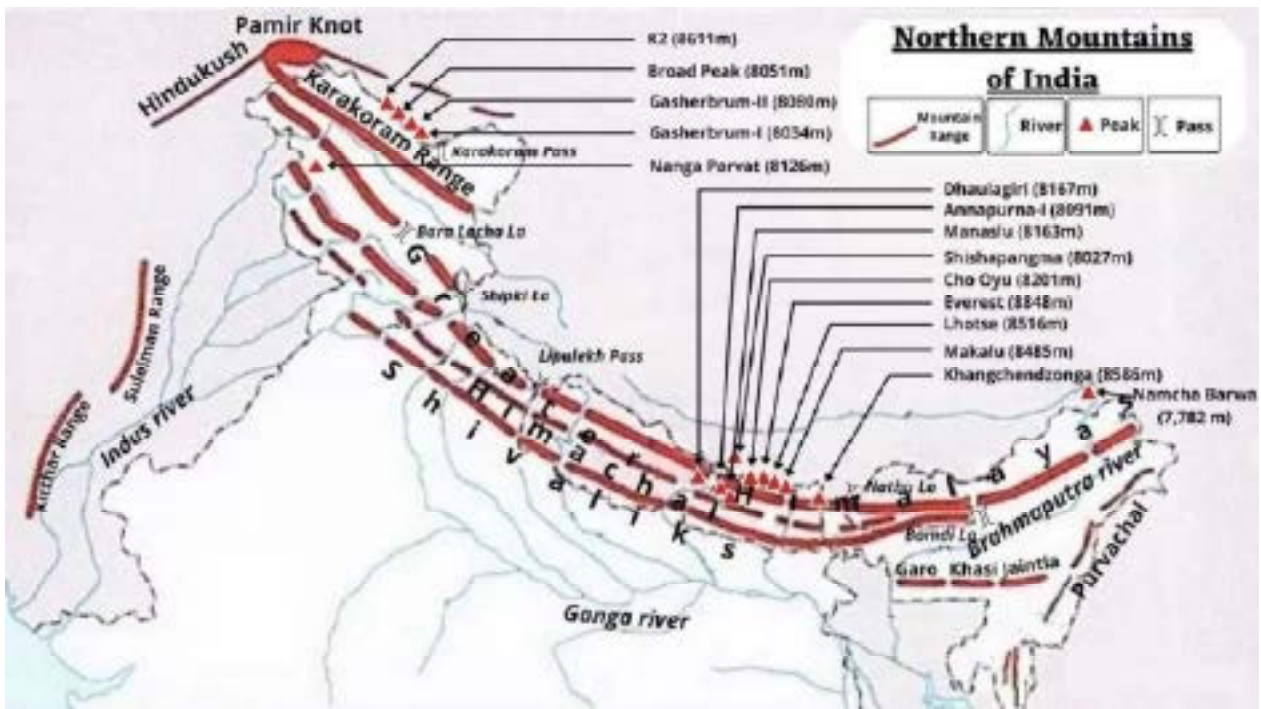
1. K2 - Karakoram range
2. Kamet - Tibetan Plateau
3. Saser Kangri- Ladakh

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Answer:-C

Explanation:-



26. Select the correct answer with reference to location of Donbas region

- (a) Located in Ukrain
- (b) Located in Russia
- (c) Located in Belarus
- (d) Located in Mangolia

Answer:- A

Explanation:-

Map



27. Consider the following countries :

1. Turkey
2. Kyrgyzstan
3. Belarus
4. Finland
5. Norway

Which of the above countries have borders with Russia ?

- (a) 1, 2 and 5 only
- (b) 1, 2, 3 and 4 only
- (c) 3, 4 and 5 only
- (d) 1, 2, 3, 4 and 5

Answer:-C

Explanation:-

Russia borders 14 countries, Azerbaijan, Belarus, China, Estonia, Finland, Georgia, Kazakhstan, North Korea, Latvia, Lithuania, Mongolia, Norway, Poland, and Ukraine.



28. With reference to Uranium, consider the following statements:

1. Uranium is a rare earth mineral.
2. Jaduguda is the first mine in the country to produce uranium ore in a commercial scale

Which of the statements given above are correct ?

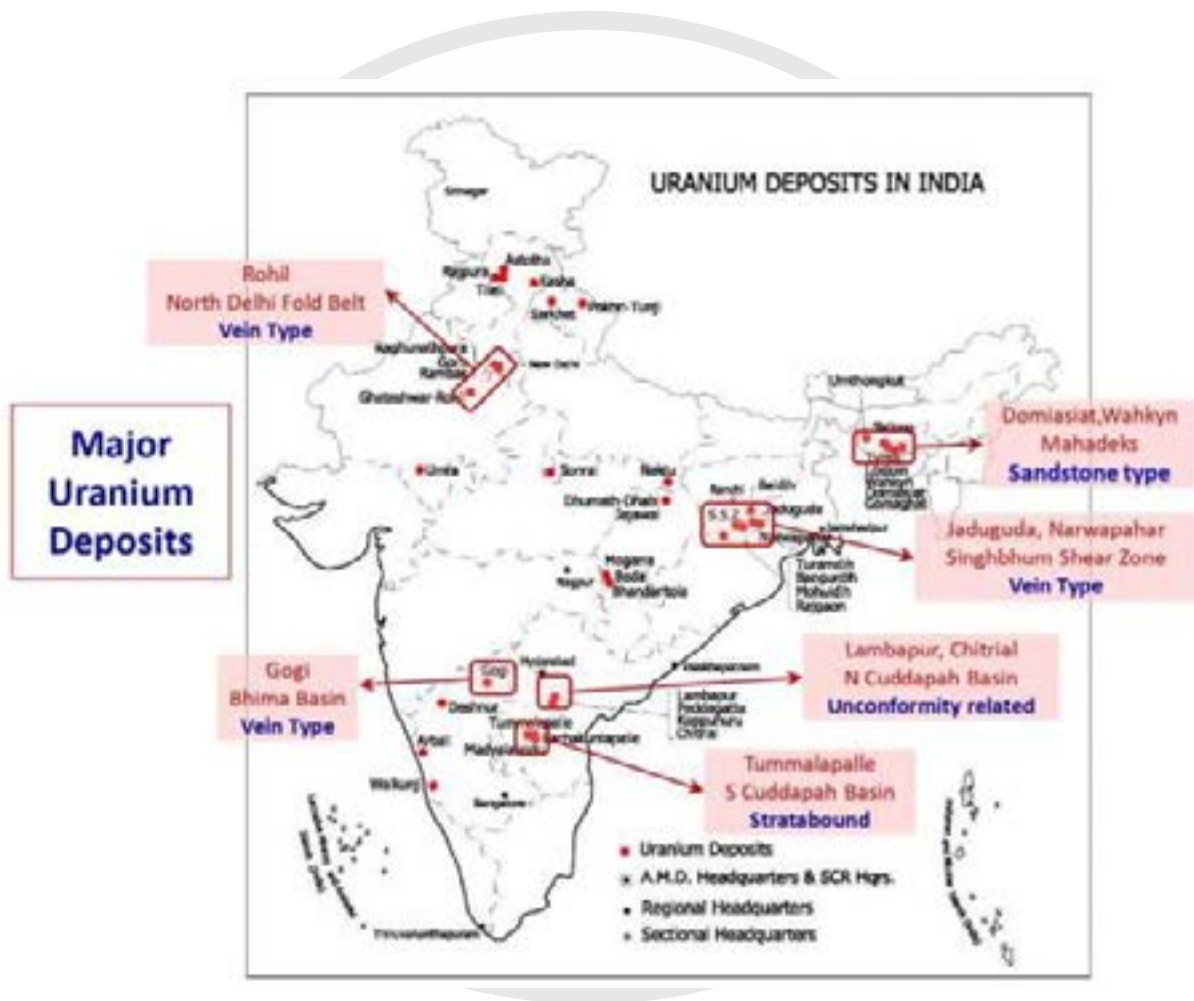
- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- B

Explanation:-

Uranium is one of the more common elements in the Earth's crust, being 40 times more common than silver and 500 times more common than gold. It can be found almost everywhere in rock, soil, rivers, and oceans. **Hence, statement 1 is incorrect.**

Jaduguda Mine: Jaduguda is the first mine in the country to produce uranium ore in a commercial scale. In this deposit, two parallel lodes extend from surface up to a depth of 905 m, which may also persist deeper. **Hence, statement 2 is correct.**



29. With reference to Summer and Winter Solstice, consider the following statements.
- (a) During the summer solstice sun is directly over the Tropic of Capricorn.
 - (b) During the winter solstice sun is directly over the Tropic of Cancer.
 - (c) In the Southern Hemisphere the summer solstice occurs on 20 or 21 and the winter solstice on December 21 or 22.
 - (d) At the winter solstice the day is the year's shortest, and at the summer solstice it is the year's longest.

Answer:- D

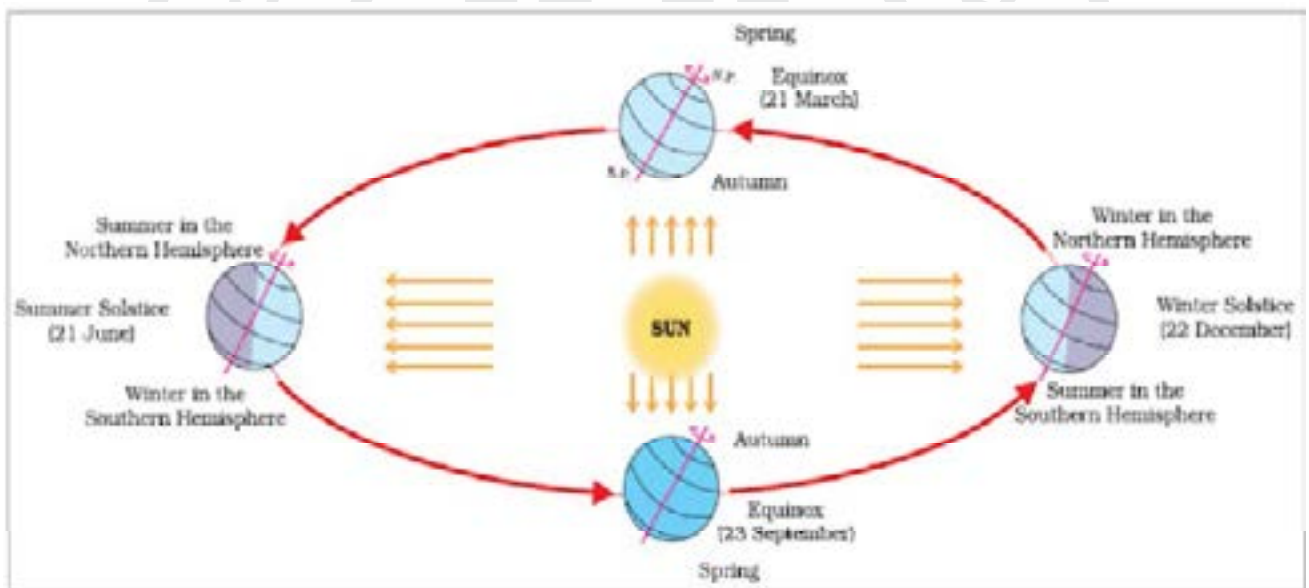
Explanation:-

At the winter solstice the day is the year's shortest, and at the summer solstice it is the year's longest. The term solstice also is used in reference to either of the two points of greatest deviation of the ecliptic (the Sun's apparent annual path) from the celestial equator. **Hence statement (d) is correct.**

The summer solstice occurs at the moment the earth's tilt toward/from the sun is at a maximum. Therefore, on the day of the summer solstice, the sun appears at its highest elevation with a noontime position that changes very little for several days before and after the summer solstice. The summer solstice occurs when the sun is directly over the Tropic of Cancer, which is located at 23.5° latitude North and runs through Mexico, the Bahamas, Egypt, Saudi Arabia, India, and southern China. **Hence statement (a) is incorrect** For every place north of the Tropic of Cancer, the sun is at its highest point in the sky and this is the longest day of the year.

The winter solstice marks the shortest day and longest night of the year. In the Northern Hemisphere, it occurs when the sun is directly over the Tropic of Capricorn, which is located at 23.5° south of the equator and runs through Australia, Chile, southern Brazil, and northern South Africa. **Hence statement (b) is incorrect.**

In the Northern Hemisphere the summer solstice occurs on June 20 or 21 and the winter solstice on December 21 or 22. **Hence statement (c) is incorrect** The situation is exactly the opposite in the Southern Hemisphere, where the seasons are reversed.



30. Consider the following pairs :

Major Dams :: State (India)

- 1. Rihand Dam - Jharkhand**
- 2. Bhavani Sagar Dam- Tamil Nadu**
- 3. Bislapur Dam - Rajasthan**
- 4. Sardar Sarovar Dam- Gujarat**

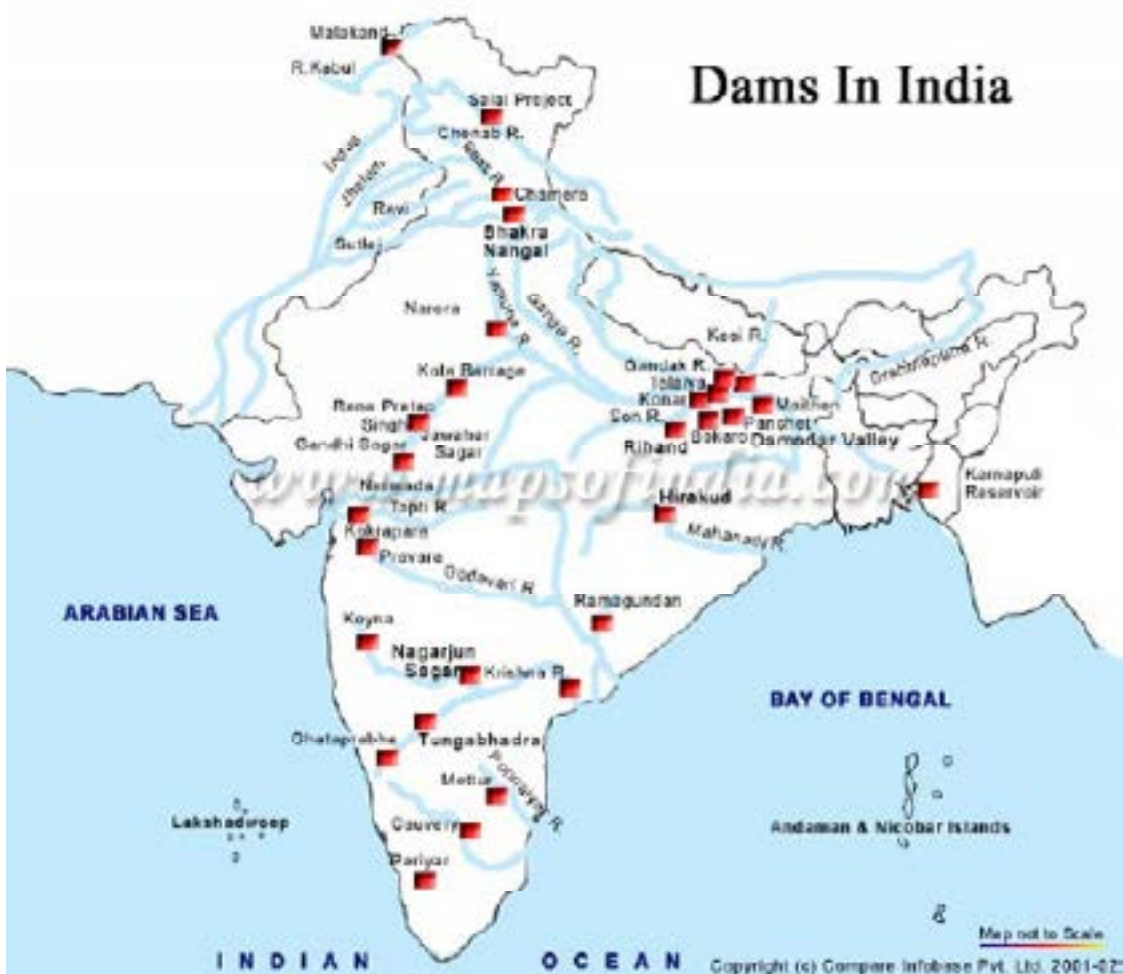
How many pairs given above are correctly matched ?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

Answer:-C

Explanation:-

Dam	State	River
Rihand Dam	Uttar Pradesh	Rihand
Bhavani Sagar dam	Tamil Nadu	Bhavani
Bisalpur Dam	Rajasthan	Banas
Sardar Sarovar Dam	Gujarat	Narmada



31. In reference to Open Source Platforms, consider the following statements

1. It grants right to use the platform.
2. It grants right to study the platform.
3. It grants right to change the platform.
4. It grants right to distribute the platform to anyone.

Select the correct answer from options given below

- (a) Only one statement is correct
- (b) Only two statements are correct
- (c) Only three statements are correct
- (d) All the statements are correct

Answer:- D

Explanation:-

Open-source software (OSS) or Open Source platform is computer software that is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software and its source code to anyone and for any purpose. Open-source software may be developed in a collaborative public manner. Open-source software is a prominent example of open collaboration, meaning any capable user is able to participate online in development, making the number of possible contributors indefinite. The ability to examine the code facilitates public trust in the software.

32. Consider the following statements with reference to 5G technology.

1. It's expected to have lower latency with better instantaneous, real-time access of the data.
2. There will be up to 100 x increase in traffic capacity and network efficiency.
3. 5G can provide 120 frames per second, high resolution and higher dynamic range video streaming without interruption.

Select the correct answer from options given below

- (a) Only one statement is correct
- (b) Only two statements are correct
- (c) All three statements are correct
- (d) None of the statements are correct

Answer:-C

Explanation:-

Capability: 5G will provide much faster mobile broadband service as compared to the previous versions and will provide support to previous services like mission critical communication and the massive Internet Of Things (IoT).

Upgraded LTE: 5G is the latest upgrade in the long-term evolution (LTE) mobile broadband networks.

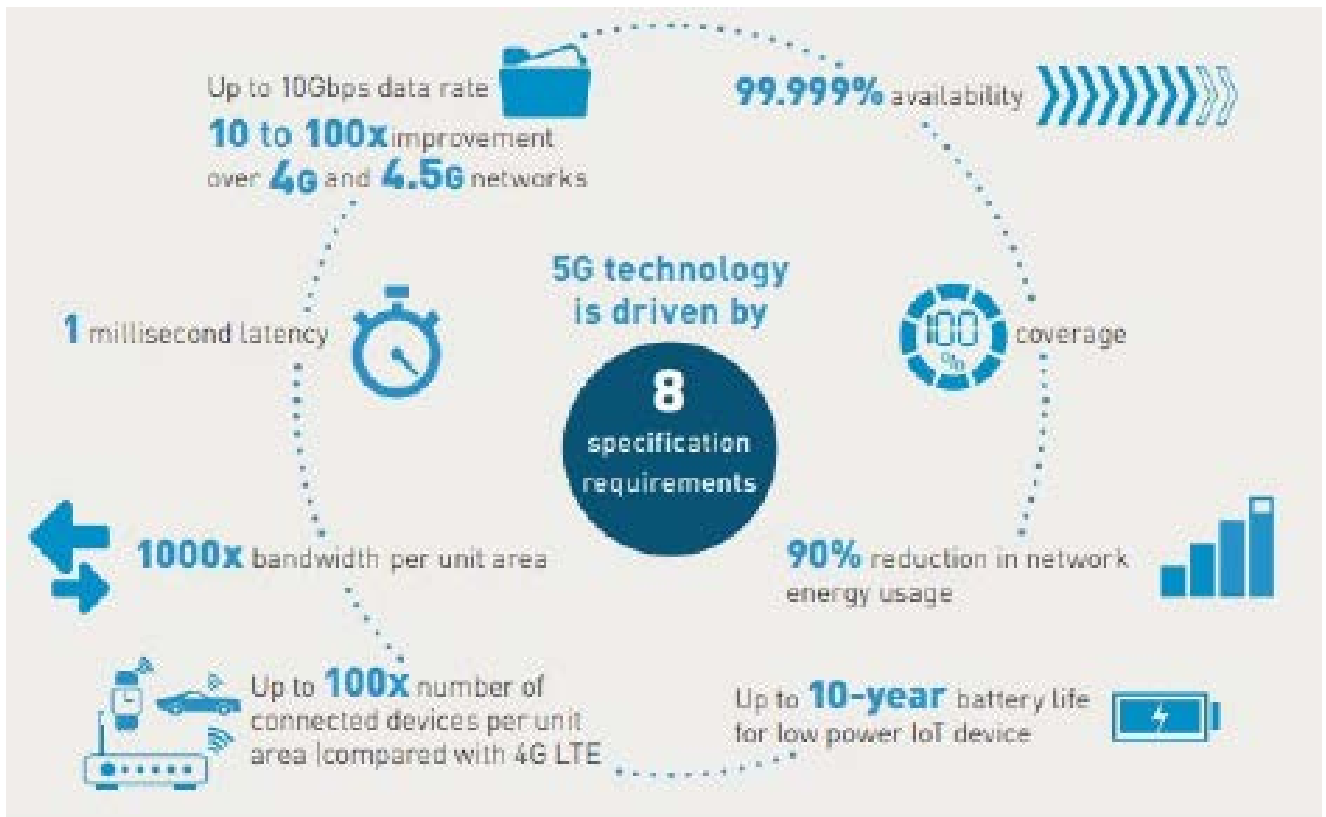
Speed: With peak delivering rate of up to 20 Gbps and an average of 100Mbps, it will be much faster as compared to its predecessors. The speed increment is partly achieved partly by using higher-frequency radio waves than previous networks.

Capacity: There will be up to 100 x increase in traffic capacity and network efficiency. **Hence, statement 2 is correct.**

Spectrum usage: Will provide better usage for every bit of spectrum, from low bands below 1 GHz to high bands.

Latency: It's expected to have lower latency with better instantaneous, real-time access of the data. The 5G, like 4G LTE, also uses Orthogonal Frequency Division Multiplexing (OFDM) but the new 5G NR (New Radio) air interface will enhance OFDM and provide better flexibility in data delivery. **Hence, statement 1 is correct.**

Entertainment and multimedia: 5G can provide 120 frames per second, high resolution and higher dynamic range video streaming without interruption. Audiovisual experience will be rewritten after the implementation of the latest technologies powered by 5G wireless. Augmented Reality and virtual Reality services will be better experienced over 5G. **Hence, statement 3 is correct.**



33. Consider the following statements with reference to Blockchain technology

1. No one computer or organization can own the chain.
2. The data present inside the Blockchain is permanent and cannot be deleted.
3. Technology is assumed to offer high security as all the transactions of Blockchain are cryptographically secure and provide integrity

Select the correct answer from options given below

- (a) Only one statement is correct
- (b) Only two statements are correct
- (c) All three statements are correct
- (d) None of the statements are correct

Answer:-C

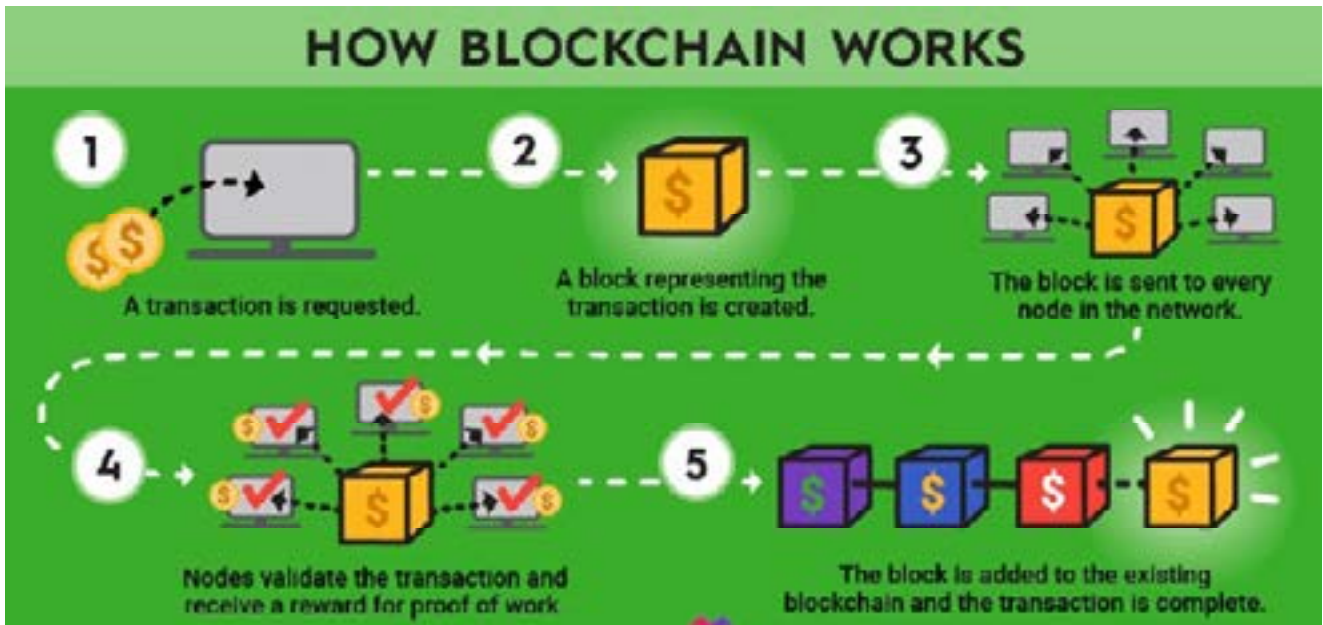
Explanation:-

One of the most important concepts in blockchain technology is decentralization. No one computer or organization can own the chain. Instead, it is a distributed ledger via the nodes connected to the chain.

Nodes can be any kind of electronic device that maintains copies of the blockchain and keeps the network functioning. **Hence, statement 1 is correct.**

Immutability: In Blockchain, there is no possibility of changing the data or altering the data; the data present inside the Blockchain is permanent; one cannot delete or undo it. **Hence, statement 2 is correct.**

High Security: This is another major benefit that Blockchain offers. Technology is assumed to offer high security as all the transactions of Blockchain are cryptographically secure and provide integrity. Thus instead of relying on third-party, you need to put your trust in cryptographic algorithms. **Hence, statement 3 is correct.**



34. Select the correct statement with reference to Quantum Key Distribution (QKD) technology.

- (a) It is primarily a mechanism to undertake secure communication
- (b) The technology enables single communicating side to come up with random secret keys which are not shared
- (c) India is yet to join the league of countries who have developed this technology.
- (d) It is for defense purpose and cannot be used for various civilian applications.

Answer:-A

Explanation:-

It is primarily a mechanism to undertake secure communication, which utilizes a cryptographic protocol involving various components of quantum mechanics. **Hence, statement 1 is correct.**

Process:

The technology enables two communicating sides to come up with random secret keys shared by both of them and known exclusively to them, so only they can use it to encrypt and decrypt messages, thus achieving a very highly-secure communication. **Hence, statement 2 is incorrect.**

QKD helps create a non-hackable quantum channel for creating unhackable encryption keys that are used to encrypt critical data or voice or video across the end points.

Key sharing:

The distribution of encryption keys is the crucial factor for this. Sharing of keys over the air or wired links requires encryption, which in turn requires encryption keys to be pre-shared.

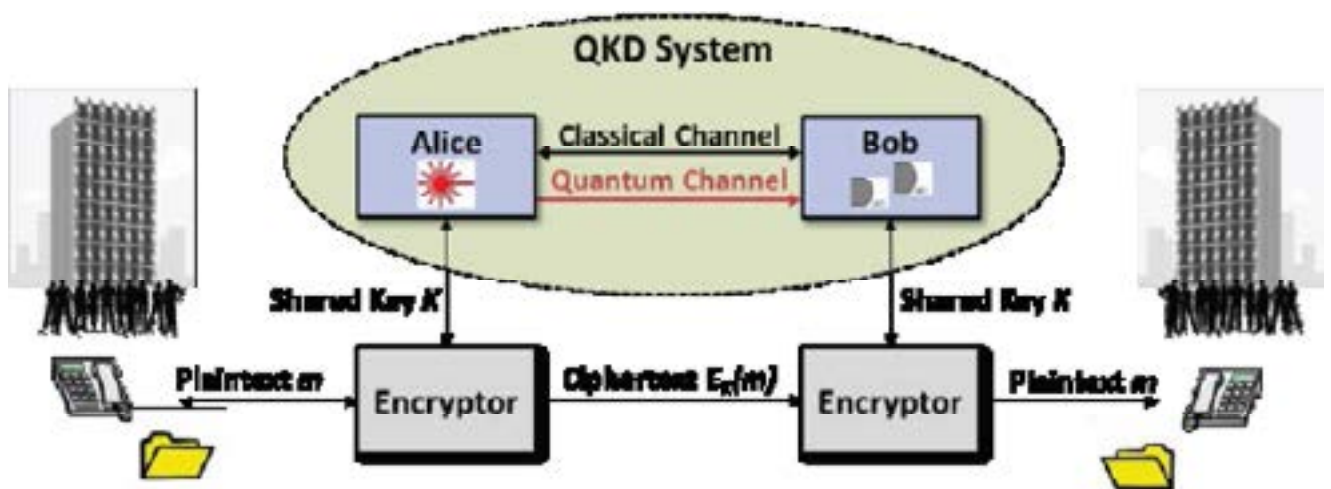
Use:

Secure communications are vital not just for the defence and strategic agencies across the globe but also for various civilian applications. **Hence, statement 4 is incorrect.**

Indian agencies:

DRDO has undertaken multiple projects for the development of this technology.

When the country is celebrating 'Azadi Ka Amrit Mahotsav', India is all set to join the league of global leaders with indigenous and more advanced quantum communication technology in order to equip its Armed Forces with high end defence," the release added. **Hence, statement 3 is incorrect.**



35. Select the correct statement in context of Visible light Communication Technologies

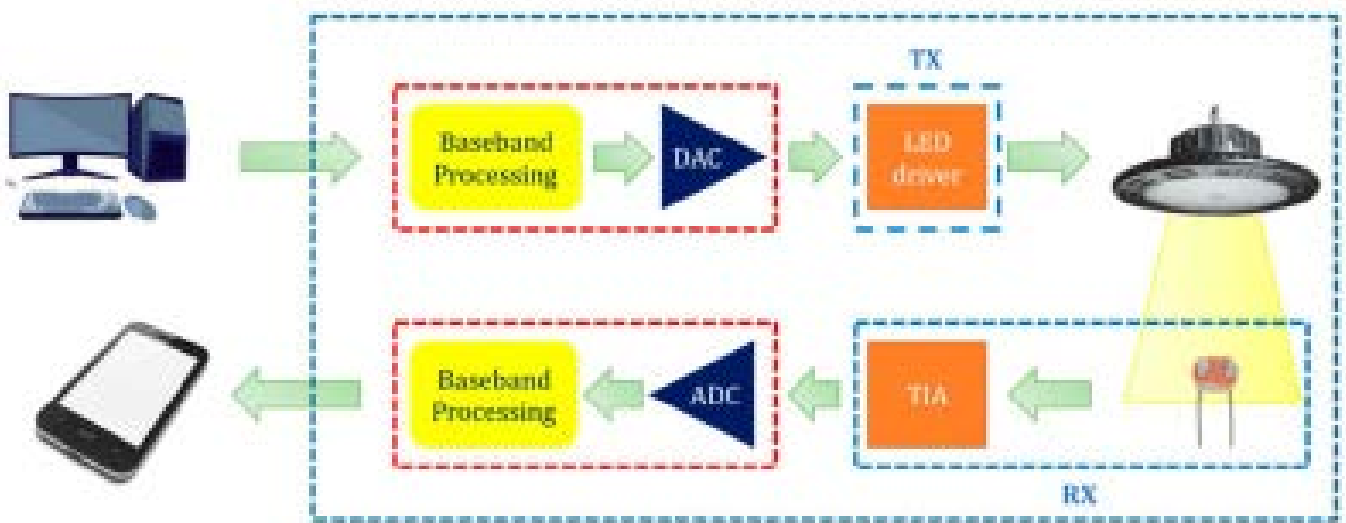
- (a) It is a wired data communication technology.
- (b) The technology uses fluorescent lamps.
- (c) To send data a modulation of light is not required.
- (d) LED lights are used to transmit data over long distance.

Answer:-B

Explanation:-

- It is a wireless data communication technology. Hence, statement A is incorrect. that utilizes visible light between the intensity of 400-800 THz (from 380 nm to 750 nm) to communicate.
- Under this technology, fluorescent light is used to transmit signals at 10 kbit/s and LED lights are used to transmit 500 Mbit/s over a small distance. Hence, statement A is incorrect.
- In order to send data, a modulation of light is required. Hence, statement C is incorrect. A modulation is the form in which the light signal varies in order to represent different symbols. In order for the data to be decoded.
- Unlike radio transmission, a VLC modulation requires the light signal to be modulated around a positive dc value, responsible for the lighting aspect of the lamp. The modulation will thus be an alternating signal around the positive dc level, with a high-enough frequency to be imperceptible to the human eye.

VLC System Structure



36. In reference to Long Range Radio(LoRa) used for communication, consider the following statements.

1. It transmits small chunks of data with low bit rates.
2. It is a new dedicated low cost financial network
3. It is developed by RBI

Select the correct answer from options given below

- (a) Only one statement is correct
- (b) Only two statements are correct
- (c) All three statements are correct
- (d) None the statements are correct

Answer:-C

Explanation:-

Recently, the Institute for Development and Research in Banking Technology (IDRBT), an arm of the Reserve Bank of India (RBI) has developed a new low cost financial network to take banking to remote areas. **Hence, statement 2 and 3 are correct.**

About Long Range Radio (LoRa)

LoRa technology is a wireless modulation technique in the physical layer, allowing long-range communication using chirp spread spectrum.

LoRa technology uses dedicated radios, which are not usually present in end-user devices, limiting interferences from other devices.

LoRa is ideal for applications that transmit small chunks of data with low bit rates. **Hence, statement 1 is correct.**

It is a new dedicated low cost financial network that can be used privately by banks to send encrypted texts to conduct financial transactions.

37. Consider the following statements with respect to 'Biochar'

1. Biochar is obtained from the thermochemical conversion of biomass in an oxygen-limited environment.
2. Process of Pyrolysis is used to obtain Biochar
3. It has very less soil health benefits

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

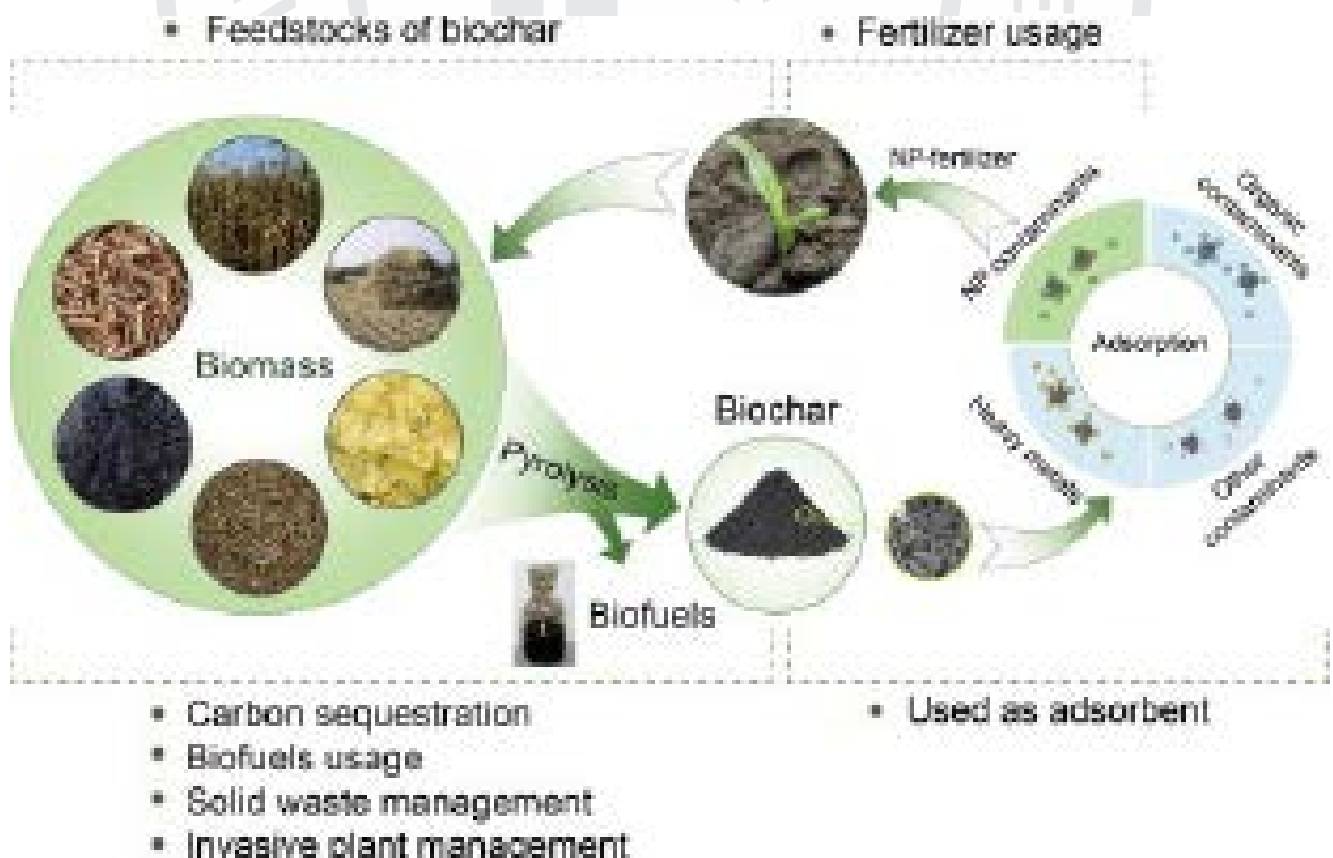
Answer:-A

Explanation:-

Biochar is defined by the International Biochar Initiative as "the solid material obtained from the thermochemical conversion of biomass in an oxygen-limited environment. **Hence, statement 1 is correct.**

Biochar is a high-carbon, fine-grained residue that is produced via pyrolysis; it is the direct thermal decomposition of biomass in the absence of oxygen (preventing combustion), which produces a mixture of solids (the biochar proper), liquid (bio-oil), and gas (syngas) products. **Hence, statement 2 is correct.**

Biochar offers multiple soil health benefits in degraded tropical soils, **but is less beneficial in temperate regions. Hence, statement 3 is incorrect.** Its porous nature is effective at retaining both water and water-soluble nutrients. Soil biologist Elaine Ingham highlighted its suitability as a habitat for beneficial soil micro organisms. She pointed out that when pre-charged with these beneficial organisms, biochar promotes good soil and plant health.



38. Consider the following statements with respect to 'Eucaryots'

1. They are complex and multicellular organisms.
2. Mitosis and meiosis both occurs in eucaryots.
3. Genetic Information is stored in Plasma membrane

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:-A

Explanation:-

They are Multicellular that is more complex. **Hence, statement 1 is correct.**

Mode of division:- both mitosis and meiosis is carried out in eucaryots using a spindle which is followed by cytokinesis. **Hence, statement 2 is correct.**

Location of genetic information is stored in the Nucleus. **Hence, statement 3 is incorrect.**

39. Select the correct options related to Lumpy Disease which was recently in news.

- (a) It is an infectious viral disease of cattle
- (b) Severity of the disease always remains same between breeds and strains of cattle
- (c) The disease has been confined to sub-Saharan Africa only
- (d) Can be transmitted to Humans if they come in contact.

Answer:- A

Explanation:-

Lumpy skin disease is an infectious viral disease of cattle. **Hence, statement (a) is correct.** which often occurs in epizootic form. The disease is characterized by the eruption of nodules in the skin, which may cover the whole of the animal's body. Systemic effects include pyrexia, anorexia, dysgalactia and pneumonia; lesions are often found in the mouth and upper respiratory tract.

The severity of the **disease varies considerably** between breeds and strains of cattle. **Hence, statement (b) is incorrect.** Many cattle suffer severe emaciation and loss of production for several months. The skin lesions cause permanent damage to the hides. The mode of transmission of the disease has not been clearly established. Contact infections do not readily occur and the evidence from the epizootiology strongly suggests that insect vectors are involved.

The disease has been confined to sub-Saharan Africa, until it recently appeared in epizootic form in Egypt and in Israel. **Hence, statement (c) is incorrect.** Transmission occurs in a wide variety of biotypes, from semi-desert to temperate grasslands and irrigated land. It has the potential to extend its range further. **It has no potential to get transmitted to human beings. Hence, statement (d) is incorrect.**



Clinical signs

Incubation period

- Between 4 and 14 days post-infection

Initial period

- High fever (41°C)
- Swollen lymph glands

- Animal may develop large, firm nodules of 5 cm in diameter in the skin

- Depression, anorexia, rhinitis, conjunctivitis, excess salivation

Marked decrease in milk production

Necrotic lesions can develop in respiratory and gastrointestinal tract

Morbidity

Between 5% and 45%

40. If a major solar storm reaches the Earth, which of the following are the possible impact on the Earth ?

1. Radiation poisoning to humans
2. Heavy Rainfall at the windward side of the mountain
3. A temporary disturbance of the Earth's magnetic field.
4. It can shift the path of satellites
5. Migration of animals is likely to happen
6. It will slowdown earths speed of rotation

Select the correct answer from code given below

- (a) 1, 2, 3, 4 and 5 only
- (b) 3, 4 and 5 only
- (c) 1, 3, 4, 5 and 6 only
- (d) 1, 2, 3, 4, 5 and 6

Answer:-C

Explanation:-

The pattern of rainfall depends on the number of water bodies in an area since the region has more water bodies that evaporate more water and this evaporation increases the cycle of precipitation water and thus initiates the rainfall. **Hence, options 2 is incorrect.**

Solar Storms can have the following effects on Earth:

- Very high-energy particles, such as those carried by Coronal Mass Ejections, can cause radiation poisoning to humans and other mammals.
- When a coronal mass ejection strikes Earth's atmosphere, it causes a temporary disturbance of the Earth's magnetic field.
- It can throw satellites off course and cause them to fall to the surface of the earth, putting many urban centers at risk.
- Some scientists have speculated that migrating animals which use magneto reception to navigate, such as birds and honey bees, might also be affected.
- Rapidly fluctuating geomagnetic fields can produce geomagnetically induced currents in pipelines. This can cause multiple problems for pipeline engineers. Pipeline flow meters can transmit erroneous flow information and the corrosion rate of the pipeline can be dramatically increased.

41. With reference to CoP 27, consider the following definitions

- 1. Mitigation - The world is not on track to achieve the Paris Agreement's stated goal of limiting global temperature rise to 1.5 or 2°**
- 2. Adaptation - At COP 26, the Glasgow-Sharm el-Sheikh (GlaSS) work programme was established till 2023 to define the Global Goal on Adaptation (GGA) and set up robust tracking mechanisms**
- 3. Action on Water Adaptation or Resilience (AWARe) was launched by Egypt's COP27 Presidency, in partnership with World Meteorological Organization (WMO).**

Select the correct answer from code given below

- (a) 1 and 2 only**
- (b) 2 and 3 only**
- (c) 1 and 3 only**
- (d) 1, 2 and 3**

Answer:- D

Explanation:-

The Agenda at COP 27

Mitigation - The world is not on track to achieve the Paris Agreement's stated goal of limiting global temperature rise to 1.5 or 2°C. **Hence, statement 1 is correct.**

Adaptation - At COP 26, the Glasgow-Sharm el-Sheikh (GlaSS) work programme was established till 2023 to define the Global Goal on Adaptation (GGA) and set up robust tracking mechanisms. **Hence, statement 2 is correct.**

Finance - At COP 26, developed countries noted the US \$100 billion target of climate finance, first determined in 2009, has not been delivered and is expected to be delivered only by 2023.

Loss and Damage - At COP 26, the G77 and China negotiating bloc (representing 80% of the world's population) had demanded for a loss and damage (L&D) finance facility.

Also, AWARe (Action on Water Adaptation or Resilience)

AWARe was launched by Egypt's COP27 Presidency, in partnership with World Meteorological

Organization (WMO). It is an initiative that will champion inclusive cooperation to address water related challenges and solutions across climate change adaptation. **Hence, statement 3 is correct.**

AWARe aims at contributing to a successful outcome at the 2023 UN Conference on Water.

42. Which of the following was initiated/adopted during Glasgow Climate Meet (Cop26)?

- 1. International Solar Alliance (ISA)**
- 2. One Sun Declaration**
- 3. Panchamrit strategy**
- 4. Dharamshala Declaration**

Select the correct answer using the code given below:

- (a) 1 and 4 only**
- (b) 2 and 3 only**
- (c) 1, 2 and 4 only**
- (d) 1, 2, 3 and 4**

Answer:- B

Explanation:-

Glasgow Climate Meet (Cop26)

Glasgow meeting strengthened the Paris Agreement mechanism of eliciting Pledges from countries and ratcheting them over time.

At COP 26, PM Narendra Modi announced India's Panchamrit strategy with targets for climate action that included initiatives like International Solar Alliance (ISA) and the Coalition for Disaster Resilient Infrastructure (CDRI). **Hence, option 2 is correct.**

Green Grids Initiative — One Sun, One World, One Grid (GGIOSOWOG): The "Green Grids Initiative" was announced at the COP26 climate talks in Glasgow, Scotland. The announcement was accompanied by the "One Sun Declaration", which stated that, "realising the vision of 'One Sun One World One Grid' through interconnected green grids can be transformational. **Hence, option 3 is correct.**

International Solar Alliance (ISA) was presented by the leaders of the two countries at the 21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris in 2015. **Hence, option 1 is incorrect.**

The Dharamshala Declaration is related to Tourism which was released at a three-day national conference on tourism. **Hence, option 4 is incorrect.**

43. In context of Riparian Buffers, select the correct answer from options given below

- (a) They are vegetated areas near a stream, usually forested, which helps shade and partially protect the stream from the impact of adjacent land uses.**
- (b) They are vegetated areas within deserts which act as buffer zone for travellers and animals.**
- (c) They are completely barren lands.**
- (d) They are vegetated areas beside ocean, which helps shade and partially protect the marine life from the impact of adjacent land uses.**

Answer:-A

Explanation:-

A riparian buffer or stream buffer is a vegetated area (a "buffer strip") near a stream, usually forested, which helps shade and partially protect the stream from the impact of adjacent land uses. It plays a key role in increasing water quality in associated streams, rivers, and lakes, thus providing environmental benefits. With the decline of many aquatic ecosystems due to agriculture, riparian buffers have become a very common conservation practice aimed at increasing water quality and reducing pollution.



44. Consider the following statements on National Ambient Air Quality Standards:
1. The National Ambient Air Quality Standards were established by the Central Pollution Control Board.
 2. They are legally binding on the States and Union Territories.

Which of the statement(s) given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- A

Explanation:-

The Central Pollution Control Board (CPCB) has established national ambient air quality standards (NAAQS), which are uniform air quality standards for the entire nation. **Hence, statement 1 is correct.**

In order to lower particulate matter levels in 132 cities by 20–30% in 2024, the NCAP was implemented throughout India in 2019.

These requirements for ambient air quality, nevertheless, are only meant to serve as guidelines for decision-makers and are not legally binding. **Hence, statement 2 is incorrect.**

45. Mycorrhiza increase the capability of plant roots to absorb nutrients like nitrogen and phosphorus. In return, the roots of the host provide support and a constant supply of carbohydrates for consumption. The biotic interaction expressed by such behaviour is _____.

- (a) Mutualism**
- (b) Commensalism**
- (c) Amensalism**
- (d) Neutralism**

Answer:- A

Explanation:-

Mutualism is the name given to associations between pairs of species that bring mutual benefit. The individuals in the populations of each mutualism species grow and/or survive and/or reproduce at a higher rate when in the presence of individuals of the other species. Example: Mycorrhizae and the host plant.

Commensalism is a relationship between members of two species in which one derives food or other benefits from the other without harming or benefiting the latter. The commensal is defined as the species that benefit from the relationship.

Amensalism is a type of biological interaction where one species causes harm to another organism without any cost or benefits to itself. It can be seen as a form of interaction or competitive behaviour among other organisms.

Neutralism is the most common type of interspecific interaction. The interaction between two species that interact but do not impact each other is referred to as neutralism (Neither population directly affects the other). The interplay between pigeons and humans is an example of neutralism. Pigeons rely on human cities and towns to give food in the form of uneaten scraps, while people are unaffected in any way. Neutralism is said to be incidental or indirect.

46. Consider the following statements about the nitrogen cycle:

- 1. Nitrogen in the atmosphere cannot be directly used as a nutrient by any plants or animals.**
- 2. Ammonia can be a direct source of nitrogen for some plants.**
- 3. The nitrates present in the soil are reduced to nitrous oxide gas by the process of ammonification.**

Select the correct answer using the code given below:

- (a) 1, 2 and 3**
- (b) 1 and 2 only**
- (c) 3 only**
- (d) None**

Answer:- B

Explanation:-

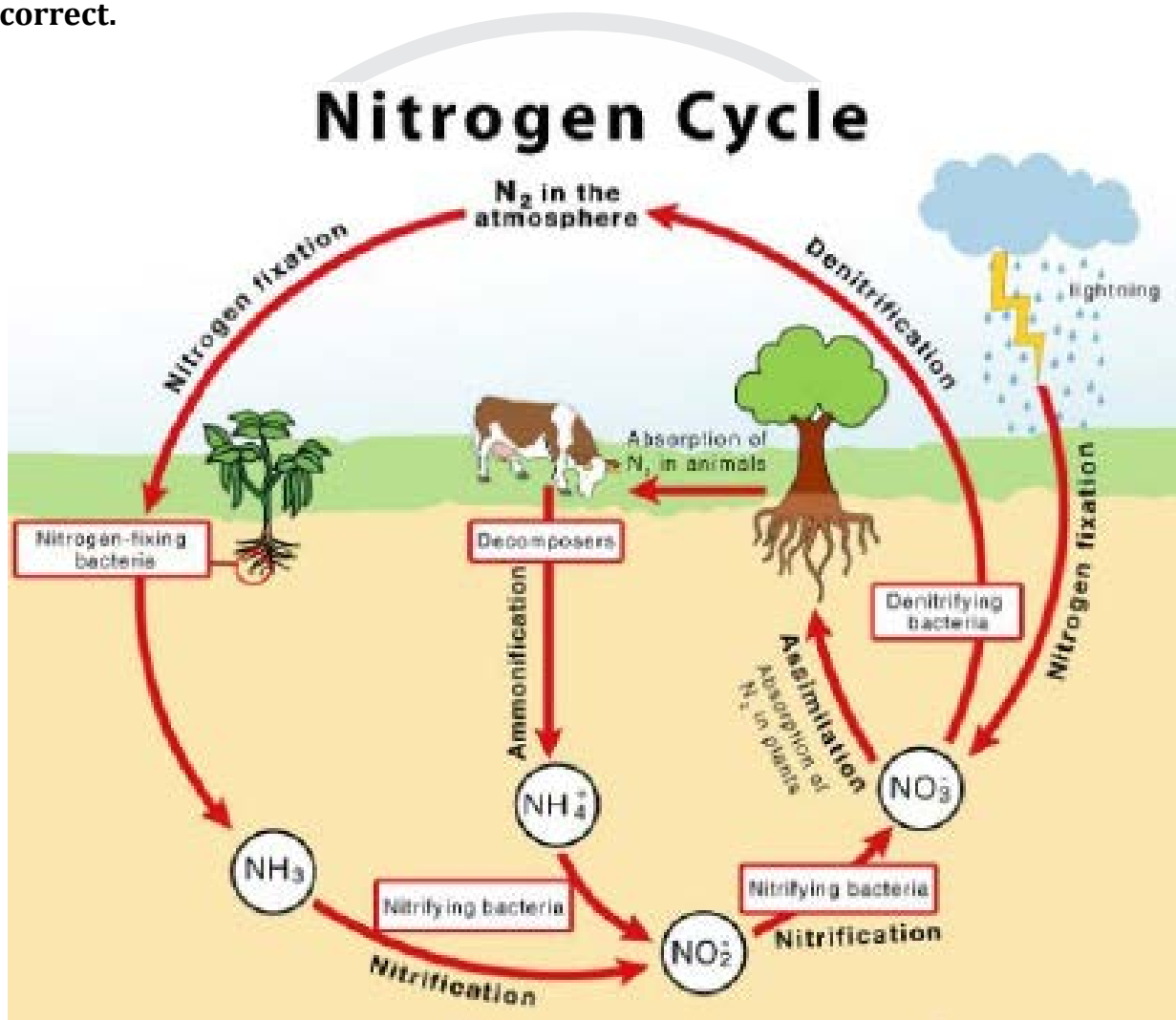
Nitrogen (N₂) in the atmosphere cannot be directly used as a nutrient by plants or animals.

It must be converted into its compound form of ammonia (NH_4), nitrates or nitrites. **Hence, statement 1 is correct.**

This occurs through four steps, of fixation, nitrification, ammonification and denitrification. Nitrogen fixing bacteria feed off the root nodules of certain plant species such as beans, peas and alfalfa while they fix nitrogen. This nitrogen is then converted into ammonia to be used by those plants. **Hence, statement 2 is correct.**

Any unused ammonia undergoes nitrification. In the ammonification step, specialised bacteria and fungi feed and convert dead material (from animals) into compounds such as ammonia and watersoluble salts containing ammonium ions. These compounds are absorbed by plants for growth. In this manner, nutrients are recycled back from animals to plants.

Finally, the denitrification step completes the nitrogen cycle as nitrogen leaves the soil and is released into the atmosphere as nitrogen or nitrous oxide gas. **Hence, statement 3 is incorrect.**



47. Which among the following are the examples of basic adaptations that help animals and plants to survive in their respective environments?

- 1. Gills and fins in fishes.**
- 2. Shape of bird's beak.**
- 3. Fur thickness of polar bear.**

Select the correct answer using the code given below:

- (a) 1 and 2 only**
- (b) 1 and 3 only**
- (c) 2 and 3 only**
- (d) 1, 2 and 3**

Answer:- D

Explanation:

Every organism is suited to live in its particular habitat. Each organism is adapted to its particular environment. Adaptations that can be observed in the structure of wildlife species have been produced and perfected through evolution. This means that the adaptations have developed over many generations to help a species survive successfully in its environment. Some examples of basic adaptations that help animals and plants to survive in their respective environments are as follows:

In fishes.

- Fish have gills that allow them to “breathe” oxygen in water. Water enters the mouth, passes over the gills, and exits the body through a special opening. Gills absorb oxygen from the water as it passes over them.
- Fish have a stream-lined body. They are typically long and narrow, which reduces water resistance when they swim.
- Most fish have several fins for swimming. They use some of their fins to propel themselves through the water and others to steer the body as they swim.
- Fish have a system of muscles for movement. Muscle contractions ripple through the body in waves from head to tail. The contractions whip the tail fin against the water to propel the fish through the water.
- Most fish have a swim bladder. This is a balloon-like internal organ that contains gas. By changing the amount of gas in the bladder, a fish can move up or down through the water column.

In bird

The adaptations which help birds to survive and thrive in all environments, on every area of the planet. Three physical characteristics in particular indicate unique adaptations to their environment: beaks (bills), feet, and plumage (feathers).

In polar bear

Polar bears are able to adapt to living in such a cold temperature due to the presence of white fur, fat beneath the skin, and a keen sense of smell.

48. Consider the following statements:

1. The highest concentration of phytoplanktons is found in tropical sea water.
2. Phytoplanktons are responsible for the transfer of carbon dioxide from the atmosphere to the ocean.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- B

Explanation:

Phytoplanktons are microscopic organisms that live in watery environments, both salty and fresh. Some phytoplanktons are bacteria and most are single-celled plants. Phytoplanktons have chlorophyll to capture sunlight, and they use photosynthesis to turn it into chemical energy.

Marine phytoplanktons are not uniformly distributed throughout the oceans of the world. Their highest concentration is generally found at higher latitudes, while the tropics and subtropics have relatively lower concentrations. Their growth depends on the availability of carbon dioxide, sunlight and nutrients. **Hence, statement 1 is incorrect.**

Through photosynthesis, phytoplankton consume carbon dioxide on a scale equivalent to forests and other land plants. Some of this carbon is carried to the deep ocean when phytoplanktons die. Worldwide, this "biological carbon pump" transfers about 10 giga tonnes of carbon from the atmosphere to the deep ocean each year. Therefore, phytoplanktons are responsible for most of the transfer of carbon dioxide from the atmosphere to the ocean. **Hence, statement 2 is correct.**

49. Which of the following features has been recognized for the first time by 'National Wildlife Action Plan' in its 2017-2031 edition?

- (a) Landscape Approach in conservation of wildlife which have an ecological value.
- (b) Increased participation of Private Sector in wildlife conservation.
- (c) Integrating climate change mitigation efforts with wildlife management planning.
- (d) Wildlife health and control of illegal trade in wildlife.

Answer:- C

Explanation:-

India's third National Wildlife Action Plan for 2017-2031 has chalked out the future road map for wildlife conservation. **The third action plan comes after the first plan in 1983 and second from 2002 till 2016.** The third National Wildlife Action Plan is unique as this is the first time, India has recognised the concerns relating to climate change impact on wildlife and stressed on integrating actions that need to be taken for its mitigation and adaptation into wildlife management planning processes. **Hence, statement (c) is correct.**

Other information

- ▶ The National Wildlife Action plan adopts a "landscape approach" in conservation of all wildlife – uncultivated flora and fauna – that have an ecological value to the ecosystem and to mankind irrespective of where they occur.
- ▶ It gives special emphasis to recovery of threatened species of wildlife while conserving their habitats.

- ▶ The Indian government has also underlined an increased role of private sector in wildlife conservation. The plan lays down that the Centre would ensure that adequate and sustained funding including Corporate Social Responsibility funds are made available for the National Wildlife Action Plan implementation.
- ▶ Wildlife Health, Control of illegal trade and strengthening of protection areas also mentioned

50. A “consciously designed landscapes, which mimic the patterns and relationships found in nature, while yielding an abundance of food, fibre, and energy for provision of local needs.” Describes which type of agricultural practice?

- (a) Floating farming
- (b) Permaculture farming
- (c) Vermicompost farming
- (d) Contour farming

Answer:- B

Explanation:-

Floating agriculture

Floating agriculture is a way of utilising areas which are waterlogged for long periods of time in the production of food. The technology is mainly aimed at adapting to more regular or prolonged flooding. The approach employs beds of rotting vegetation, which act as compost for crop growth.

Vermicomposting is a process in which earthworms are used to convert organic materials into humus-like material known as vermicompost. A number of researchers throughout the world have found that the nutrient profile in vermicompost is generally higher than traditional compost.

Contour farming is the practice of tillage, planting, and other farming operations performed on or near the contour of the field slope. This method is most effective on slopes between two (2) and ten (10) percent.

Permaculture as a concept and a movement emerged from combining the words "permanent" and "agriculture." It has ultimately evolved to mean "permanent culture" to emphasise the broader challenges of sustainable living.¹ Developed by the Australian biologist Bill Mollison and his student David Holmgren in the 1970s, the system is described as "consciously designed landscapes, which mimic the patterns and relationships found in nature, while yielding an abundance of food, fibre, and energy for provision of local needs."^{2,3}

51. The Indian Councils Act 1909, which brought about a limited increase in the involvement of Indians in the governance, consider the following statements?

1. Advocation of separate Muslim electorates in all provinces
2. Local bodies would now directly elect members of central legislature through electoral college
3. British executive retained an absolute veto over all legislation
4. Elected Indians were not permitted to discuss foreign policy

Select the correct answer using the code given below:

- (a) 2 and 3 only
- (b) 3 and 4 only
- (c) 1, 3 and 4 only
- (d) 1, 2 and 4 only

Answer:-B

Explanation:-

The Act itself conferred some political reforms. Both central and provincial legislative councils were increased in size and had their memberships expanded. Local bodies would elect an electoral college, which in turn would elect the members of provincial legislatures, who in turn would elect members of the central legislature. **Hence, statement 2 is incorrect.** Under the Act, Muslim members were to be elected by only Muslim voters, dividing the electorate. **Hence, statement 1 is incorrect.**

Previously, provincial councils had a majority of their members appointed from civil service officials, referred to as an "Official Majority"; with the passage of the act, this system was lifted. However, an official majority was retained on the Central Legislative Council.

The elected Indians were allowed to table resolutions, debate budgetary matters, and ask supplementary questions, which they were previously prevented from doing so. Nevertheless, they were not permitted to discuss foreign policy or relations with the princely states were. **Hence, statement 4 is correct.** The British executive also retained an absolute veto over all legislation. **Hence, statement 3 is correct.**

52. With reference to Medieval India, what does the term 'Zawabit' mean.

- (a) A rule of action obligatory for the king.
- (b) A tax imposed on religious pilgrims
- (c) A sect of Islam followers in India
- (d) It refers to son-in-law of the emperor

Answer:-A

Explanation:-

Barani defines **Zawabit** as "a rule of action which a king imposes as an obligatory duty on himself for realising the welfare of the state and from which he never deviates." It is obvious that these zawabit would often tend to favour the royalty and the officers of the king.

53. Which of the following revolutionaries were associated with Hindustan Socialist Republican Association (HSRA)

1. Sachindra Nath Sanyal
2. Jogesh Chandra Chatterjee
3. BK Dutt

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:-D

Explanation:-

The party was initially named Hindustan Republican Association (HRA) by Bismil when he formed it in 1923. The main reason for the party's formation was Mahatma Gandhi's calling off the non-cooperation movement in 1922 because of the Chauri Chaura incident. Major activity of the HSRA was the Central Assembly bombing case. Bhagat Singh and BK Dutt bombed the Central Legislative Assembly, Delhi on 8th April 1929. Their only intention was to "make the deaf hear" and not to harm anyone. Nobody was injured in the bombing and both the revolutionaries courted arrest after the incident. **Hence, option 3 is correct.** Other prominent members of the party were Sachindra Nath Sanyal and Jogesh Chandra Chatterjee (who was also a member of the Anushilan Samiti). **Hence, option 1 and 2 is correct.**

54. With reference to the proposals of Cabinet Mission, consider the following statements:

1. The centre's power was to be confined only to foreign affairs, defence and currency.
2. Princely States will retain all subjects and powers other than those ceded to the Union.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:-B

Explanation:-

The mission made its own proposals, after inconclusive dialogue with the Indian leadership, seeing that the Congress opposed Jinnah's demand for a Pakistan comprising six full provinces. The mission proposed a complicated system for India with three tiers: the provinces, provincial groupings and the centre.

The centre's power was to be confined to foreign affairs, defence, currency and communications. The provinces would keep all the other powers and were allowed to establish three groups. **Hence, statement 1 is incorrect.**

The plan's main characteristic was the grouping of provinces. Two groups would be constituted by the mainly-Muslim western and eastern provinces. The third group would comprise the mostly-Hindu areas in the south and the centre.

Thus provinces such as UP, CP, Bombay, Bihar, Orissa and Madras would make Group A. Group B would comprise Sind, Punjab, Northwest Frontier and Baluchistan. Bengal and Assam would make a Group C.

Princely States will retain all subjects and powers (non central government's powers) other than those ceded to the Union. **Hence, statement 2 is correct.**

55. With reference to Indian history, consider the following about Tripitaka texts:

1. Suttavibhanga deals with governing rules of sangh and monks comes under Abhidhammapitaka
2. Yamaka dealing with Buddha comes under Sutta Pitaka
3. Digha Nikaya a collection of Buddha's sermons comes under Vinaya Pitaka

Which of the above are INCORRECT about the texts?

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 1, 2 and 3

Answer:-D

Explanation:-

Sutta Pitaka

It contains over 10 thousand suttas or sutras related to Buddha and his close companions. This also deals with the first Buddhist council which was held shortly after Buddha's death, dated by the majority of recent scholars around 400 BC, under the patronage of king Ajatasatru with the monk Mahakasyapa presiding, at Rajgir.

Its sections are:

Digha Nikaya:Comprises the "long" discourses in 34 long sutras. **Hence, statement 3 is incorrect.**

Majjhima Nikaya:Comprises the "middle-length" discourses in 152 sutras.

Samyutta Nikaya: Comprises the "connected" discourses in over 2800 sutras.

Anguttara Nikaya: Comprises the "numerical" discourses in over 9600 sutras.

Khuddaka Nikaya: Comprises the "minor collection" It has 15-17 booklets. (Thai 15. Sinhali 17 & Burmese 18 booklets).

Vinaya Pitaka

The subject matter of Vinay Pitaka is the monastic rules for monks and nuns. It can also be called as Book of Discipline.

Suttavibhanga: The basic code of Monastic discipline is known as It contains 227 rules for fully ordained Monks called bikkhus (Maha vibhanga) and 311 rules for fully ordained nuns called Bikkhunis (Bikkhuni Vibhanga) They are contained in Suttavibhanga, one of the parts of Vinay Pitaka. **Hence, statement 1 is incorrect.**

Khandhaka:Khandhaka is the second book of Vinay Pitaka. It has two volumes viz. Mahavagga and Cullavagga. Mahavagga deals with the awakening of Buddha and his great disciples. Cullavagga deals with the first and second Buddhist councils and establishments of community of Buddhist nuns and rules for Buddhist community.

Parivara: Parivara is the last book of Vinaya Pitaka. It covers the summary of analysis of rules mentioned in first two books of Vinay Pitaka. Its is latest book and seems to be later than the Fourth Buddhist Council in Ceylon. It also contains questions and answers.

Abhidhammapitaka

Abhidhammapitaka deals with the philosophy and doctrine of Buddhism appearing in the suttas. However, it does not contain the systematic philosophical treatises. There are 7 works of Abhidhamma Pitaka which most scholars agree that don't represent the words of Buddha himself. The 7 books are

Dhammasangani: It contains a matrix which lists the classification of Dhammas or ideas.

Vibhanga :It has 18 chapters dealing with different teachings of Buddhism. It is in 3 volumes and third volume is in question answer format.

Dhatukatha:It has a matrix and various topics.

Puggalapannatti: It has a matrix which deals with the list of the persons.

Kathavatthu:It contains the debates and commentary on those debates.

Yamaka :Yamaka has questions in pairs and understanding. **Hence, statement 2 is incorrect.**

Patthana :It also contains the questions and answers.

56. With reference to Indian history, consider the following pairs:

Buddhist Scholars :: Their work

1. Ashwaghosha – Saundaramanakavya
2. Nagarjuna – Pancha Skanda Prakarana
3. Buddhaghosha – Pramanasamuccaya

How many pairs given above are correctly matched?

- (a) None of the pairs
- (b) Only one pair
- (c) Only two pairs
- (d) All three pairs

Answer:- B

Explanation:-

Buddhist Scholars

Asvaghosa (80 C.E - 150 C.E)

He was born into a Brahmin family in Ayodhya. He was a philosopher-poet from India. He went from being a strong opponent of Buddhism to becoming a Buddhist follower under the influence of Monk Parsva. (Mahayana patriarch) He served as spiritual counsellor in Kanishka's court. He is called father of Sanskrit drama. He popularised the kavya style of Sanskrit poetry. His Important works are Mahayana Sraddho Pada-Sastra(awakening of Faith in Mahayana), Buddhacharita(Life of Buddha), Mahalankara(Book of glory) which is written in Classical Sanskrit. He also wrote the poem 'Saundaramanakavya,' which narrates Lord Buddha's conversion of Nanda's to Buddhism. **Hence, option 1 is correct.**

Nagarjuna (150 C.E – 250 CE)

He was born in Nagarjunakonda, contemporary Andhra Pradesh, to a Brahmin family. He was a Mahayana Buddhist thinker, scholar-saint, and philosopher from India. He is regarded as the founder of the Madhyamika ("Middle Way") school of Mahayana Buddhist philosophy. His Important works are fundamental Verses on the Middle Way“Mula-Madhyamakakarika. The principle of emptiness is fundamental to Nagarjuna's philosophy known as Shunyavad. (sunyata). Nagarjuna's Buddhist doctrine includes Anatman (not-self), concept of Two Truths(relative truth and absolute truth), Sutra Samuccaya (Compendium of Sutras)

and Pratityasamutpada (dependent origination).

Vasubandhu(4th Century-5th Century)

He was born in the Gandhara state of Purusapura.

Vasubandhu was a well-known Buddhist teacher who helped develop Mahayana Buddhism in India. Vasubandhu is reported to have written a thousand works, 500 in the Hinayana tradition and 500 in the Mahayana tradition. His Important works are Pancha Skanda Prakarana (Exposition on the Five Aggregates), Abhidharmakosha, Karma Siddhi, Vadavidhi (A Method of Argumentation), Trimshika, **Hence, option 2 is incorrect.** Vasubandhu questioned individuals who believed that dharmas are anything more than temporary in his Karma Siddhi Prakarana

Buddhaghosa - with Visuddhimagga (5th-century)

He was born into a Brahmin family in the kingdom of Magadha. He was a Theravada Buddhist commentator, translator, and philosopher from India. His Important works: Visuddhimagga (The Path of Purification) a synthesis and explanation of the Theravada concept of the Buddha's path to nirvana. His name translates as "Buddha's Voice." Considered to be the most prominent Theravada commentator. He is claimed to have travelled to Sri Lanka from Magadha in India and resided in Anuradhapura.

Dignaga (480 CE – 540 CE)

Dignaga was born near Kanchipuram in Simhavaktra.

He is regarded as the father of Buddhist logic.

His Important works: Pramaṇasamuccaya (Compendium of the Means of True Knowledge), a work that laid the foundations of Buddhist logic. **Hence option 3 is incorrect.**

Before being discharged and becoming a disciple of Vasubandhu, he studied under Nagadatta of the Pudgalavada school.

Dignaga defined "perception" as learning free of any conceptual structures, including notions of name and class.

57. With reference to Indian history of Delhi sultanate, consider the following statements:

- 1. The first invasion in India happened under the leadership of Mahmud of Ghazni.**
- 2. The famous Koh-i-Noor diamond was looted during the Delhi sultanate era.**
- 3. Daulat Khan Lodi was the last sultan of Delhi sultanate.**

Which of the statements given above is/are correct?

- (a) 1 and 2 only**
- (b) 2 only**
- (c) 1 and 3 only**
- (d) 3 only**

Answer:-B

Explanation:-

The foundation of the Sultanate was laid by the Ghurid conqueror Muhammad Ghori who routed the Rajput Confederacy led by Ajmer ruler Prithviraj Chauhan in 1192 near Tarain, after suffering a reverse against them earlier. As a successor to the Ghurid dynasty, the Delhi Sultanate was originally one among a number of principalities ruled by the Turkic slave-generals of Muhammad Ghori, including Yildiz, Aibak and Qubacha, that had inherited and divided the Ghurid territories amongst themselves. **Hence, statement 1 is incorrect.**

After the Mongols withdrew, Ala ud-Din Khalji continued to expand the Delhi Sultanate into southern India with the help of generals such as Malik Kafur and Khusro Khan. They collected much war booty (anwatan) from those they defeated. His commanders collected war spoils and paid **ghanima** (a tax on spoils of war), which helped strengthen the Khalji rule. Among the spoils was the Warangal loot that included the famous Koh-i-Noor diamond. **Hence, statement 2 is correct.**

Sikandar Lodi died a natural death in 1517, and his second son Ibrahim Lodi assumed power. Ibrahim did not enjoy the support of Afghan and Persian nobles or regional chiefs. Ibrahim attacked and killed his elder brother Jalal Khan, who was installed as the governor of Jaunpur by his father and had the support of the amirs and chiefs. Ibrahim Lodi was unable to consolidate his power, and after Jalal Khan's death, the governor of Punjab, Daulat Khan Lodi and Rana Sanga, reached out to the Mughal Babur and invited him to attack the Delhi Sultanate. Babur defeated and killed Ibrahim Lodi in the Battle of Panipat in 1526. The death of Ibrahim Lodi ended the Delhi Sultanate, and the Mughal Empire replaced it. **Hence, statement 3 is incorrect.**

58. With reference to Indian history, what does the term "Dahsala System" mean ?

- (a) Education System**
- (b) Pilgrimage visit system**
- (c) A Gurukul system**
- (d) Land taxation system**

Answer:-D

Explanation:-

- Dahsala is an Indian system of land taxation which was introduced in A.D. 1580 under the reign of Akbar. This system was introduced by the finance minister of Akbar, Raja Todar Mal, who was appointed in A.D.
- 1573 in Gujarat, and it helped to make the system of tax collection from non-muslims more organised. Under the system he took a careful survey of crop yields and prices cultivated for a period of 10 years.
- The Dahsala system as instituted by Akbar, the average produce of different crops as well as the average prices prevailing over the last ten years was calculated and one-third share of the average produce was apportioned to the state.
- In fact, historians believe in Mughal period, it was the most significant method of assessment. The origin of this practice is traced in Sher Shah's reign. During Akbar's reign, the system was revised a number of times before it took the final shape.
- The system was adopted only in the major provinces of the Empire covering Multan, Delhi, Allahabad, Awadh, Agra, and Lahore.

59. With reference to Indian history, consider the following statements:

- 1. The first french factory was established in Masulipatam.**
- 2. French purchased Chandernagore from the Mughal Governor of Bengal.**
- 3. With giving over Pondicherry, Yanam, Mahe and Karaikal to the Indian Union, French colonialism in India ended.**

Which of the statements given above are correct?

- (a) 1 and 2 only**
- (b) 2 and 3 only**
- (c) 1 and 3 only**
- (d) 1, 2 and 3**

Answer:-B

Explanation:-

The first French factory in India was established at Surat in 1668. **Hence, statement 1 is incorrect.**

The French settlement in India began in 1673. The French purchased Chandernagore from the Mughal Governor of Bengal. Next year they acquired Pondicherry from the Sultan of Bijapur. Both became the centres of commercial activities of the French in India. **Hence, statement 2 is correct.**

With the independence of India on 15 August, 1947, France eventually decided to relinquish their territories in India. The lodges in Machilipatnam, Kozhikode and Surat were added in October in 1947. Chandernagore was relinquished to Indian on 2nd May 1950. It became a part of West Bengal on October 2nd 1954. On 1st November of that same year, Pondicherry, Yanam, Mahe and Karaikal were given over to the Indian Union. **Hence, statement 3 is correct.**

60. According to Mauryan Administration, consider the following statements.

- 1. Administrative control was strongest in the capital and in provincial centres.**
- 2. Communications along the land and riverine routes were developed.**
- 3. Committees and sub-committees were formed for coordinating military activities.**

Which of the statements given above are correct?

- (a) 1 and 2 only**
- (b) 2 and 3 only**
- (c) 1 and 3 only**
- (d) 1, 2 and 3**

Answer:-D

Explanation:-

There were five important political centres in the Mauryan Empire: Patliputra (the capital city) and the provincial centres of Taxila, Ujjayini, Tosali and Suvarnagiri.

It was not possible for such a large empire to have a uniform administrative system so historians believe that the administrative control was perhaps strongest in the capital and in provincial centres. **Hence, statement 1 is correct.**

Communications along the land and riverine routes were developed to administer the Empire. **Hence, statement 2 is correct.**

The army was an important tool for not only extending the territories of the empire but also for administering them.

Committees and sub-committees were formed for coordinating military activities. They looked after the navy, horses, chariots, elephants, recruiting soldiers and managing transport and food supplies for soldiers. **Hence, statement 3 is correct.**

Asoka held his Empire together by propagating the doctrine of Dhamma, whose principles were simple and universally applicable. The doctrine propagated the ideas of peace, non-violence and respect towards elders. Dhamma mahamattas were appointed to spread the principles of Dhamma.

61. With reference to Indian Economy, what are the advantages of Indian Debt Market?

- 1. Fragmentation of credit risk to debt and equity market will make our financial system stronger.**
- 2. The scope for directed lending only to specific larger companies will reduce.**
- 3. It serves as an alternative to bank credit**

Select the correct answer from code given below

- (a) 1 and 2 only**
- (b) 2 and 3 only**
- (c) 1 and 3 only**
- (d) 1, 2 and 3**

Answer:-D

Explanation:-

the advantages are

The development of the debt markets and their increasing scale and sophistication are good things and need to be encouraged.

The fragmentation of credit risk between equity and debt markets will make our financial system stronger. **Hence, statement 1 is correct.**

The decentralisation of credit decisions also reduces the scope for directed lending only to specific larger companies. **Hence, statement 2 is correct.**

It will also serve as an alternate to bank credit, which are witnessing higher number of non-performing assets in their balance sheets. **Hence, statement 3 is correct.**

Thus, an equity investor need to spend some time understanding the debt markets' perspective on the companies that they invest.

62. Consider the following States:

- 1. Andhra Pradesh**
- 2. Kerala**
- 3. West Bengal**
- 4. Orissa**

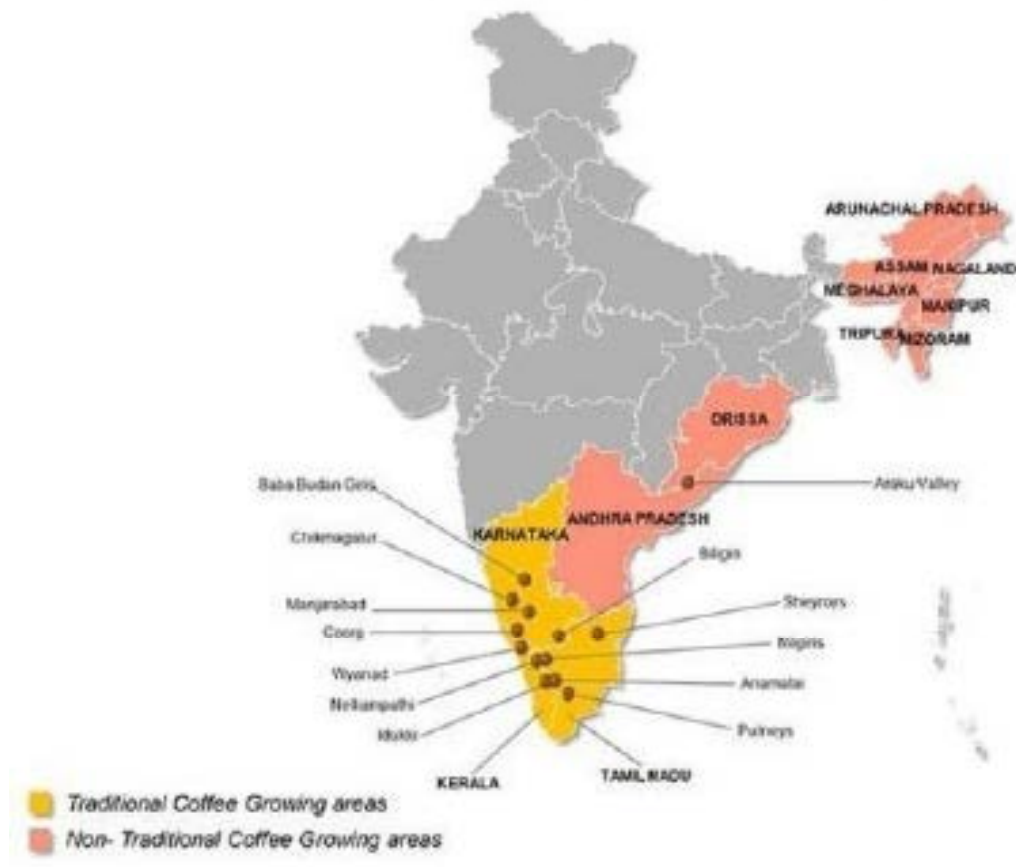
How many of the above are known as coffee-producing States?

- (a) Only one State**
- (b) Only two States**
- (c) Only three States**
- (d) All four States**

Answer:- C

Explanation:-

Coffee Producing Areas of India



63. Consider the following statements with reference to credit rating agencies in India:

1. Credit rating agencies primarily rate the lending abilities of investors.
2. In India, credit rating agencies have to be registered with the Securities and Exchange Board of India.
3. CRISIL is the only credit rating agency of India.

Select the correct answer from code given below

- (a) 1 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer:-B

Credit Rating Agencies (CRA) assess the credit worthiness (credit record, integrity and capability) of a prospective buyer to fulfill the debt obligations. **Hence, statement 1 is incorrect.**

The Securities and Exchange Board of India Regulations, 1999 empower SEBI to regulate CRAs operating in India. All the credit agencies need to be registered with SEBI in order to operate in India. **Hence, statement 2 is correct.**

Credit rating agencies in India do not have a distant past. They came into existence in the second half of the 1980s. As of now, there are six credit rating agencies registered under SEBI namely, CRISIL, ICRA, CARE, SMERA, Fitch India and Brickwork Ratings. Ratings provided by these agencies determine the nature and integrals of the loan. Higher the credit rating, lower is the rate of interest offered to the organisation. **Hence, statement 3 is incorrect.**

64. With reference to the 'Reserve Bank of India (RBI)', which of the following statements are correct?

1. Last year, RBI has announced an expert committee on primary urban cooperative banks. The chairman of the committee is NS Vishwanathan.
2. Governor of RBI acts as a chairman of Banks Board Bureau.
3. Reserve Bank of India (RBI) has announced that the first pilot for the retail version of the Digital Rupee would be introduced on December 1, 2022.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:-C

Explanation:-

On 16th February 2021, RBI has announced an expert committee on primary urban cooperative banks. The chairman of the committee is NS Vishwanathan. **Hence, statement 1 is correct.**

Banks Board Bureau on March 23, 2016. The Bureau accordingly started functioning from April 01, 2016 as an autonomous recommendatory body. The board comprises the Chairman, three ex-officio members i.e. Secretary, Department of Public Enterprises, Secretary of the Department of Financial Services and Deputy Governor of the Reserve Bank of India and three expert members. The Governor of RBI is not its chairman. **Hence, statement 2 is incorrect.**

RETAIL TESTS WITHIN A MONTH

<ul style="list-style-type: none">> CBDC is legal tender issued by a regulator in digital form. It is can help cut cost of printing and distributing money and also make settlement efficient> Wholesale transactions and cross-border payments will be the focus of future pilots, based on the learnings from the current one	<ul style="list-style-type: none">> A second pilot project on retail use of the digital rupee may start within a month in closed groups> The sovereign digital currency may use the distributed ledger technology similar to the one (blockchain) used by cryptocurrencies> India's step towards wholesale CBDC is among few pilots globally, bankers said
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The Reserve Bank of India (RBI) has announced that the first pilot for the retail version of the digital Rupee (e₹-R) would be introduced on December 1, 2022.

Hence, statement 3 is correct.

65. Which of the following is/are the likely implications of an increase in Bond Yields on the Indian economy?

1. Profit depreciation for Indian banks.
2. Increase in capital inflows into the equities market.
3. Increase in borrowing cost of defense equipment's in the economy.

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1 only

Answer:-B

Explanation:-

Bond yield is the return an investor realizes on a bond or on particular government security. Rising yields on government securities or bonds in the United States and India have triggered concern over the negative impact on other asset classes, especially stock markets, and even gold.

Bond losses are a major problem for banks as a rise in yields leads to a fall in bond prices and therefore these losses have to be booked by the banks. This could depress profits of banks and make any fund raising plans difficult. So profit depreciation of banks is one of the probability and not a mandatory situation. **Hence, statement 1 is incorrect.**

The cost of capital is a weighted average of the cost of equity and the cost of debt. If the bond yields go up then it means the cost of capital goes up and therefore current valuations are more depressed. Which would in turn capital outflow from Indian equity market. **Hence, statement 3 is incorrect.**

Higher bond yields will mean that the government will have to borrow at much higher rates, something it will not be prepared to do as it will sharply increase its borrowing cost. This is not great news considering that the government needs to borrow heavily to meet its budget in the next 1 year. Higher yields could be a major dampener to the government borrowing program. **Hence, statement 3 is correct.**

66. Consider the following:

1. Asian-African Legal Consultative Organization
2. Australia Group
3. Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation

India is the member of which of the above organizations ?

- (a) 1 and 2 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer:-D

Explanation:-

AALCO - Asian-African Legal Consultative Organization

Was constituted on 15 November 1956.

Originally known as the Asian Legal Consultative Committee (ALCC)

Founding Members: India, Indonesia, Iraq, Japan, Myanmar, Sri Lanka, Egypt & Syrian Arab Republic. **Hence, option 1 is correct.**

The Headquarters of AALCC in New Delhi.

AG - Australia Group

Established in 1985

Total of 48 member countries

India joined the group in January 2018. **Hence, option 2 is correct.**

Its first meeting was held in Brussels, Belgium, in September 1989

BIMSTEC - Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
Founded on June 1997

India is a founding member among 6 others. **Hence, option 3 is correct.**

Headquartered in Dhaka, Bangladesh

67. Recently in news 'Transatlantic alliance', with reference to it consider the following statements

- 1. A real-world expression of West - of a sense that both sides of Atlantic are together.**
- 2. The collective security and shared prosperity of the USA and Europe are built through the alliance**
- 3. Transatlantic Trade and Investment Partnership (T-TIP) south-american are also part of the partnership.**

Select the correct answer from code given below

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer:-A

Explanation:-

The Transatlantic Alliance has been the cornerstone of the post-World War II world order. It is a real-world expression of West - of a sense that both sides of Atlantic are in it together. **Hence, statement 1 is correct.**

It is the foundation on which the collective security and shared prosperity of the USA and Europe are built **Hence, statement 2 is correct.**

However, this historic, long-established friendship between the world's two largest economies has become strained in recent years.

Transatlantic Trade and Investment Partnership (T-TIP):

T-TIP is an ambitious, comprehensive, and high-standard trade and investment agreement being negotiated between the United States and the European Union (EU). **Hence, statement 3 is incorrect.**

The TTIP negotiations were launched in 2013 and ended without conclusion at the end of 2016.

T-TIP will be a cutting edge agreement aimed at providing greater compatibility and transparency in trade and investment regulation, while maintaining high levels of health, safety, and environmental protection.



68. Which ministry is responsible for Minimum support price (MSP) ?

- (a) Ministry of Agriculture
- (b) Ministry of Statistics and Programme Implementation
- (c) Ministry of Finance
- (d) Ministry of Commerce & Industry, Department of Commerce

Answer:- A

Explanation:-

The Indian government sets the price for about two dozen commodities twice a year. MSP is fixed on the recommendations of the Commission for Agricultural Costs and Prices (CACP), an apex advisory body for pricing policy under the Ministry of Agriculture

69. With reference to Digital rupee, consider the following statements

1. First pilot in the Digital Rupee, Wholesale segment will commence on November 1, 2022
2. Digital Rupee is a digital form of currency notes issued by a central bank.
3. It can be defined as the legal tender

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:-D

Explanation:-

The Reserve Bank of India (RBI) said that the first pilot in the Digital Rupee, Wholesale segment will commence on November 1, 2022. Hence, statement 1 is correct.

A Central Bank Digital Currency (CBDC) or Digital Rupee is a digital form of currency notes issued by a central bank. **Hence, statement 2 is correct.**

It is an electronic form of money that can be used in contactless transactions.

It can be defined as the legal tender issued by the Reserve Bank of India. **Hence, statement 3 is correct.**

Reference:-<https://economictimes.indiatimes.com/news/economy/policy/rbi-to-launch-digital-rupee-pilot-for-wholesale-segment-from-november-1/articleshow/95206020.cms>

70. This protected site mostly consists of tropical forests along with unique genetic reservoir of cultivated plants like cardamom and pepper. It constitutes three wildlife sanctuaries and one tiger reserve. It is home to Kani tribes and occupies a prominent place in the epic Ramayana. Which of the following protected areas could be this?

(a) Nilgiri Biosphere Reserve

(b) Pachmari Biosphere Reserve

(c) Agasthyamalai Biosphere Reserve

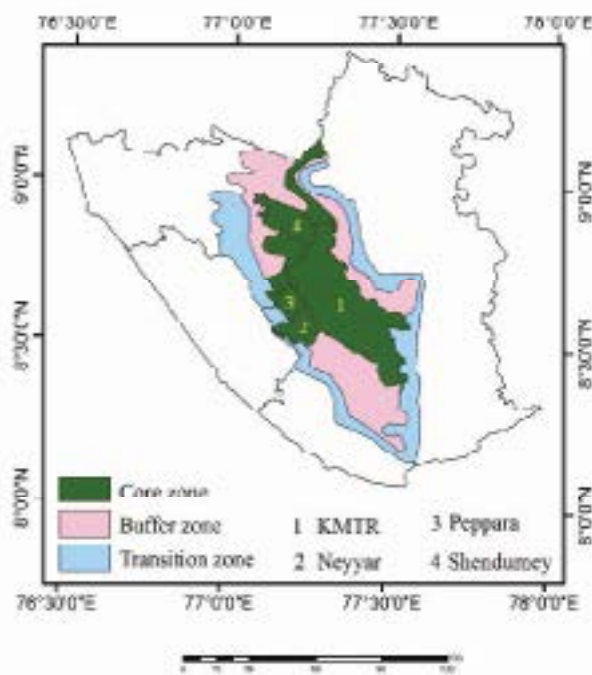
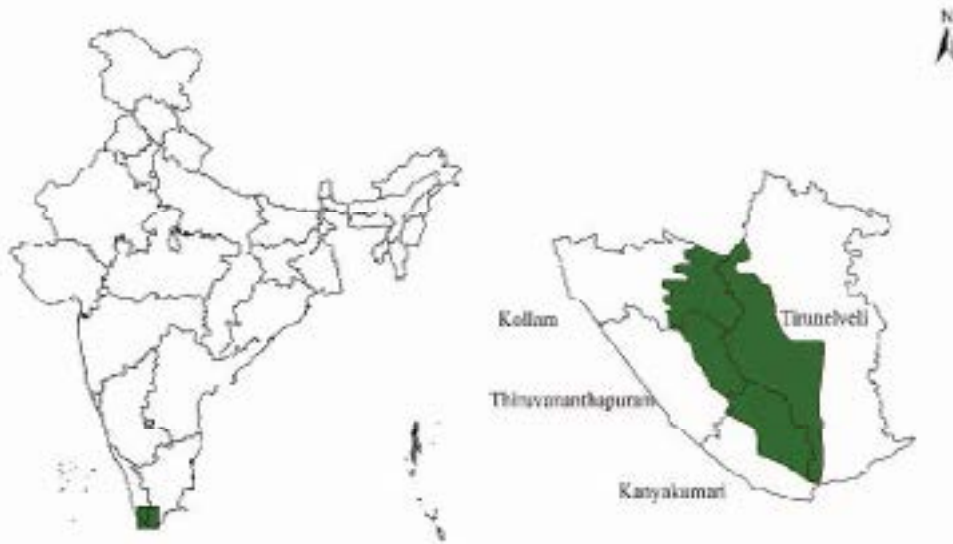
(d) Achanakmar-Amarkantak Biosphere Reserve

Answer:-C

Explanation:-

The Agasthyamalai Biosphere Reserve (became part of World Network of Biosphere Reserves in 2016) is located in the southernmost end of the Western Ghats. It falls within the Tirunelveli and Kanyakumari districts of Tamil Nadu and the Thiruvananthapuram and Kollam districts of Kerala. The site consists mostly of tropical forest (tropical wet evergreen forests, moist deciduous forest, montane rain forests and shola forests). It is also a unique genetic reservoir of cultivated plants, in particular cardamom, jamune, pepper, etc. It constitutes an important bio-geographical 'hot spot' within the Western Ghats. Three wildlife sanctuaries, Shendurney, Peppara and Neyyar, are located in the site, as well as the Kalakad Mundanthurai Tiger reserve.

Image: Agasthyamalai Biosphere reserve.



71. Which ministry defines Special economic zone (SEZ) in India ?

- (a) Ministry of rural development
- (b) Ministry of Commerce & Industry, Department of Commerce
- (c) Ministry of shipping
- (d) Ministry of New and Renewable Energy

Answer:- B

Explanation:-

Reference:- <http://sezindia.nic.in/cms/sez-act.php>

72. In context of functions of the Enforcement Directorate (ED) consider the following statements.

- 1. Investigating violations of Foreign Exchange Management Act (FEMA) laws and provisions.**
- 2. Investigating offences of Prevention of Money Laundering Act, 2002 (PMLA) laws and provisions.**
- 3. Processing cases of fugitive/s from India under the Fugitive Economic Offenders Act, 2018.**
- 4. Adjudicating show-cause notices issued under the repealed FERA (Foreign Exchange Regulation Act, 1973)**

Select the correct answer using the code given below:

- (a) 1, 2 and 4 only**
- (b) 2 and 3 only**
- (c) 1, 3 and 4 only**
- (d) 1, 2, 3 and 4**

Answer:- D

Explanation:-

Functions of Enforcement Directorate (ED)

1. Investigating violations of Foreign Exchange Management Act (FEMA) laws and provisions. Designated ED Officials adjudicate FEMA violations. Penalties up to three times the sum involved can be imposed. **Hence, statement 1 is correct.**
2. Investigating offences of Prevention of Money Laundering Act, 2002 (PMLA) laws and provisions. **Hence, statement 2 is correct.**
ED has the power to attach the assets of the culprits found guilty of violation of FEMA. "Attachment of the assets" means prohibition of transfer, conversion, disposition or movement of property by an order issued under Chapter III of the Money Laundering Act.
3. Processing cases of fugitive/s from India under the Fugitive Economic Offenders Act, 2018. Offenders choose to stay outside the country and its jurisdiction to protect themselves. This Act allows Economic Offenders from evading the law and preserves the sanctity of the justice system in the country. **Hence, statement 3 is correct.**
4. Adjudicating show-cause notices issued under the repealed FERA (Foreign Exchange Regulation Act, 1973). **Hence, statement 4 is correct.**
5. Sponsoring cases of Preventive Detention under the Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974 (COFEPOSA) with respect to FEMA violations.
6. Rendering cooperation to foreign countries in matters related to money laundering and restoration of assets under the PMLA provisions.

73. Which of the following statements is INCORRECT relating to the Ninth Schedule of the Indian Constitution?

- (a) It was inserted by the first constitutional amendment act, 1951.**
- (b) The acts and regulations in the ninth schedule are protected by article 318 of the Indian constitution.**
- (c) In the famous I.R. Coelho case, the Supreme court ruled that all the acts and regulations under the ninth schedule are not open to challenge in court.**
- (d) It deals with the state acts and regulations that deal with land reforms and the abolition of the zamindari system.**

Answer:- C

Explanation:-

The correct answer is In the famous I.R. case, the Supreme court ruled that all the acts and regulations **under the ninth schedule are open to challenge in court. Hence, option (c) is incorrect.**

The Ninth Schedule contains a list of central and state laws which cannot be challenged in court.

- Currently, 284 of these laws are exempt from judicial review. In 1951, when the Constitution underwent its first amendment, the Schedule was added to the text.
- It was established by the new Article 31B, which was introduced by the government together with Article 31A to defend legislation pertaining to agrarian reform and the abolition of the Zamindari system. • A. 31A extends protection to 'classes' of laws. A. 31B shields specific laws or enactments.

The Ninth Schedule Case:

In the I.R. Coelho case (2007), the Supreme Court ruled that laws falling under the Ninth Schedule can not have any blanket immunity from judicial review.

According to the Supreme Court, judicial review is a "basic component" of the constitution and cannot be eliminated, not even with the help of the ninth schedule.

74. Consider the following statements regarding 'Community Reserves' in Indian context:

- 1. Community Reserves act as buffer zones for national parks, wildlife sanctuaries and other protected forests.**
- 2. Community Reserves are completely owned by government but can be used by local communities for subsistence.**

Which of the statements given above is/are correct?

- (a) 1 only**
- (b) 2 only**
- (c) Both 1 and 2**
- (d) Neither 1 nor 2**

Answer: (a)

Explanation:-

Conservation reserves and community reserves in India denote protected areas of India which typically act as buffer zones for established national parks, wildlife sanctuaries and reserved and protected forests of India. **Hence, statement 1 is correct.**

The State Government may, where the community or an individual has volunteered to conserve wildlife and its habitat, declare the area by notification as community reserve. Such areas are either owned by private individual or have collective ownership of the community. The Community Reserve is managed through a Community Reserve Management Committee. Value Addition: Conservation Reserves (and not Community Reserves) are completely owned by government but can be used for subsistence by communities. **Hence, statement 2 is incorrect.**

75. With reference to guidelines issued by the Central Ground Water Authority (CGWA) to regulate the extraction of groundwater, consider the following statements:

1. Annual water audits are compulsory for industrial users.
2. It is mandatory for mining projects to get a No objection certificate (NoC) for withdrawal of groundwater.
3. Domestic consumers and farmers do not need NoC for drawing water up to a limit.

Select the correct answer from code given below

- (a) 1 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- D

Explanation:-

2020 Guidelines for Groundwater Regulation

- Mandatory requirement of applying for NOC for new and existing industries, mining activities, group housing societies, and private water supply tankers. **Hence, statement 2 is correct.**
- NOC holders to pay groundwater charges based on quantum extraction unlike old provision where they had to pay a nominal lump-sum.
- No NOC to industries in over exploited areas.
- Installation of Sewage treatment plants; rooftop rainwater harvesting and recharge systems and wells for groundwater level monitoring in NOC areas.
- Categories exempted from NOC requirements include Domestic consumers; rural drinking water supply schemes; Armed Forces Establishments and Central Armed Police Forces; agricultural activities; MSMEs drawing 10 cubic metre/day. **Hence, statement 3 is correct.**
- Penalty between Rs 50,000 and Rs 10 lakh for noncompliance. 2018 guidelines on groundwater extraction
- Concept of Water Conservation Fee (WCF) for industrial extraction
- Encouraging use of recycled and treated sewage water by industries,
- Provision of action against polluting industries
- Mandatory requirement of digital flow meters, piezometers, and digital water level recorders
- Mandatory annual water audit. **Hence, statement 1 is correct.**
- Mandatory roof top rainwater harvesting
- Prevention of ground water contamination in premises of polluting industries/ projects

76. With reference to PM MITRA Parks Scheme, consider the following statements:

1. The scheme will strengthen the Indian food processing industry by reducing logistics cost by housing the entire value chain at one location.
2. PM MITRA Park will be developed by a Special Purpose Vehicle (SPV) set up by the State Government.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- B

Explanation:-

Recently, India surpassed the UK to become the world's fifth biggest economy. **Hence, statement 1 is incorrect:** Ministry of Textiles (MoT) has launched PM Mega Integrated Textile Regions and Apparel Parks (MITRAs) Scheme to strengthen the Indian textile industry by way of enabling scale of operations, reduce logistics cost by housing entire value chain at one location, attract investment, generate employment and augment export potential. The scheme will develop an integrated large scale and modern industrial infrastructure facility for total value-chain of the textile industry for example, spinning, weaving, processing, garmenting, textile manufacturing, processing & printing machinery industry.

PM MITRA Park will be developed by a Special Purpose Vehicle (SPV). SPV will be a legal entity (with 51% equity shareholding of the State Government and 49% of Central Government) set up by the State Government for the purpose of implementing the PM MITRA Park Project. The scheme envisages to leverage the Public Private Partnership model for fast paced implementation in a time-bound manner. **Hence, statement 2 is correct.**



The infographic features a purple and orange color scheme. At the top left, the text reads 'PM MITRA A LANDMARK DECISION TO EMPOWER TEXTILES SECTOR'. Below this, a purple banner states 'Approves 7 Mega Integrated Textile Region & Apparel (MITRA) Parks'. To the right is a circular image of an elderly woman in a red sari spinning yarn. Below the banner are three bullet points, each with an icon: a factory for 'MITRA Parks will be setup at Greenfield/Brownfield sites located in different willing states', a money bag for 'Support worth ₹500 crore to all Greenfield & ₹200 Crore to Brownfield MITRA Parks for development', and a tree for 'Support worth ₹300 crore to all MITRA Parks for competitiveness incentives to the manufacturing units'. At the bottom right is a portrait of Narendra Modi with his arms crossed.

PM MITRA
A LANDMARK DECISION
TO EMPOWER TEXTILES
SECTOR

Approves 7 Mega Integrated Textile Region & Apparel (MITRA) Parks

- MITRA Parks will be setup at Greenfield/Brownfield sites located in different willing states
- Support worth ₹500 crore to all Greenfield & ₹200 Crore to Brownfield MITRA Parks for development
- Support worth ₹300 crore to all MITRA Parks for competitiveness incentives to the manufacturing units

77. With reference to UNICEF, consider the following statements

1. Nodal Ministry : Ministry of Social Justice for implementing UNICEF projects.
2. Call to Action, 2013 : This initiative was launched by UNICEF to reduce under-five mortality.

Which of the statements given above is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- B

Explanation:-

UNICEF began its work in India in 1949 with three staff members and established an office in Delhi three years later. Currently, it advocates for the rights of India's children in 16 states. Nodal Ministries: Ministry of Women and Child Development. **Hence, statement 1 is incorrect**

Call to Action, 2013: This initiative was launched to reduce under-five mortality. **Hence, statement 2 is correct.**

It has brought together state governments, development partners, such as UNICEF, NGOs, the corporate sector and other key stakeholders under the umbrella to ensure harmony in efforts to accelerate inroads in child survival.

78. With reference to Polar Wandering, consider the following statements

- (a) It is the migration of the magnetic poles over Earth's surface through geologic time
- (b) Polar wander is the motion of a pole in relation to moon light.
- (c) It is impossible to have any reference and observe the relative motion of the magnetic pole
- (d) Solar wind has a huge impact on Polar wandering

Answer:- A

Explanation:-

Polar wandering

It is the migration of the magnetic poles over Earth's surface through geologic time. **Hence, option (a) is correct.**

Polar wander is the motion of a pole in relation to some reference frame. **Hence, option (b) is incorrect.**

It can be used, for example, to measure the degree to which Earth's magnetic poles have been observed to move relative to the Earth's rotation axis. **Hence, option (c) is incorrect.** Solar wind has no to minimal impact on Polar wandering. **Hence, option (d) is incorrect.**

79. With reference to Jute Board, consider the following statements

1. The National Jute Board (NJB) is the apex body for promotion of Indian Jute. Set up under "National Jute Board Act, 2008"
2. The Board is chaired by the Minister of Textiles, Government of India.
3. The Headquarter of the National Jute Board is in Kolkata

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- C

Explanation:-

The National Jute Board (NJB) is the apex body for promotion of Indian Jute. Set up under "National Jute Board Act, 2008", the Board is chaired by the Secretary, Ministry of Textiles, Government of India. The Board's prime objective is to provide better marketing of jute products, although it addresses itself to multi-dimensional activities. **Hence, statement 1 is correct and 2 is incorrect.**

The Headquarters of the National Jute Board are in Kolkata, with regional representations in Jute growing areas and in other areas for marketing of the Jute Products. **Hence, statement 3 is correct.**

Please note that The Jute Manufactures Development Council was constituted as a statutory body in 1984 and now has been merged with the National Jute Board.

80. Consider the following statements about Madden Julian Oscillation:

1. Madden Julian Oscillation is a moving 'pulse' of clouds, rainfall, winds near the equator that moves from east to west.
2. Since the Madden Julian Oscillation occurs around equator it does not affect Indian monsoon pattern.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

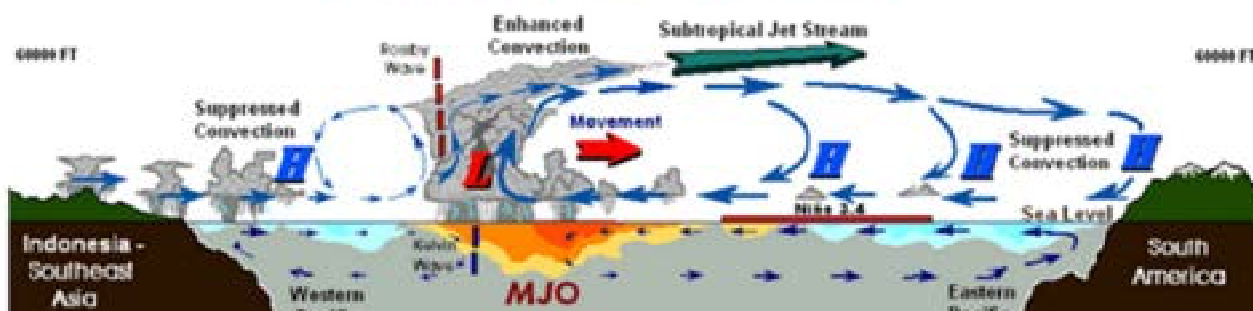
Answer:- D

Explanation: -

Madden Julian Oscillation is defined as an **eastward moving** 'pulse' of clouds, rainfall, winds near the equator that typically recurs every 30 to 60 days. **Hence, statement 1 is incorrect.**

In the tropics, MJO in its active phase brings frequent cyclonic activity, and can initiate the onset of the monsoon. **Hence, statement 2 is incorrect.**

Madden-Julian Oscillation (MJO) in the Tropical Pacific Ocean



81. In the context of clouds, consider the following statements:

1. Cirrus clouds are usually thin.
2. Cirrus clouds often indicate fair weather.
3. Cumulonimbus clouds are dense towering vertical cloud.
4. Cumulonimbus clouds are associated with thunderstorms and atmospheric instability.

Select the correct answer from the code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Answer:-D

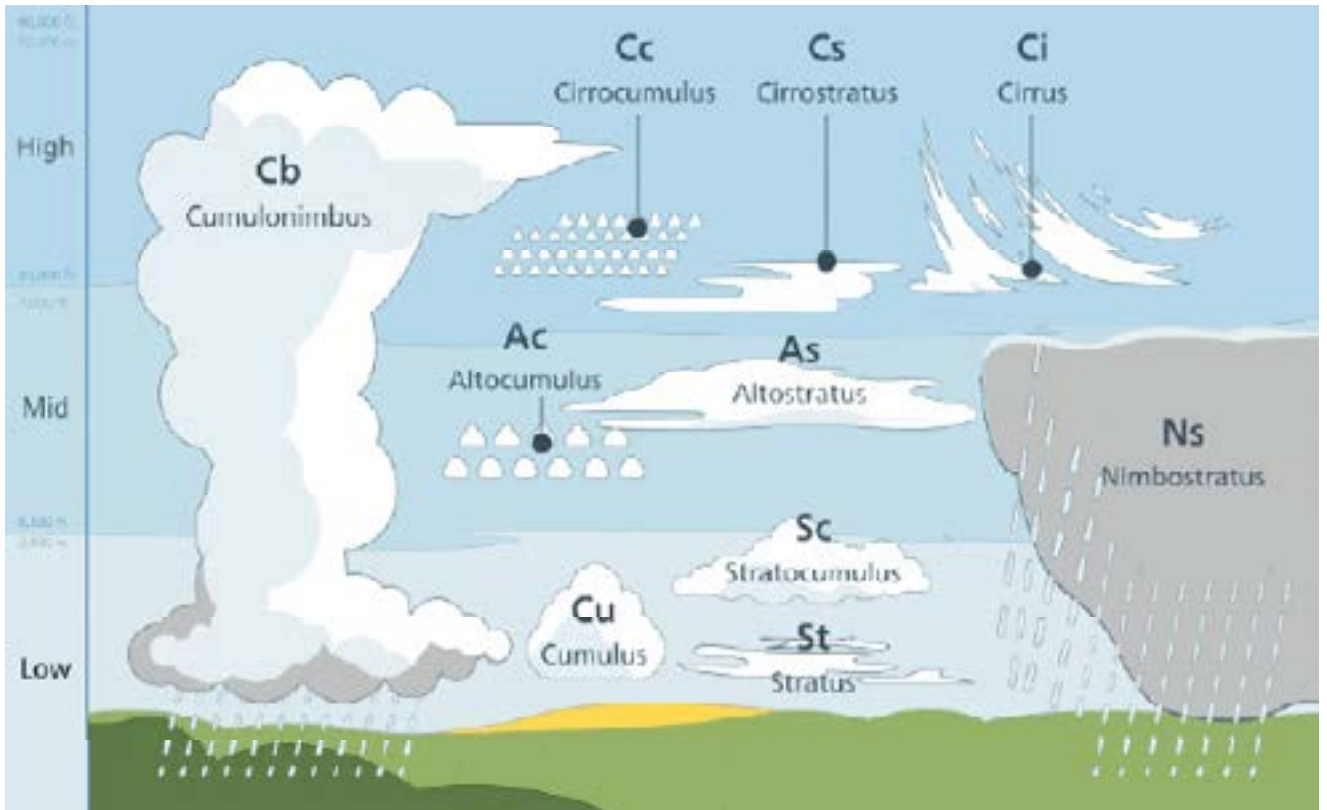
Explanation:-

Clouds are classified according to their height above and appearance (texture) from the ground. The following cloud roots and translations summarize the components of this classification system

Cirro-: curl of hair, high; 2) Alto-: mid; 3) Strato-: layer; 4) Nimbo-: rain, precipitation; and 5) Cumulo-: heap.

Cirrus clouds are wispy, feathery, and composed entirely of ice crystals. They often are the first sign of an approaching warm front or upper-level jet streak. Unlike cirrus, cirrostratus clouds form more of a widespread, veil-like layer (similar to what stratus clouds do in low levels). Cirrus clouds are usually thin Cirrus clouds often indicate fair weather. **Hence, statement 1 and 2 are correct.**

If enough atmospheric instability, moisture, and lift are present, then strong updrafts can develop into the cumulus cloud leading to a mature, deep cumulonimbus cloud, i.e., a thunderstorm producing heavy rain. In addition, cloud electrification occurs within cumulonimbus clouds due to many collisions between charged water droplet, graupel (ice-water mix), and ice crystal particles, resulting in lightning and thunder. Cumulonimbus clouds are dense towering vertical cloud. **Hence, statement 3 and 4 are correct.**



82. With reference to Xinxiang Province, consider the following statements

1. Resided by the Uighurs, it is a predominantly Muslim minority Turkic ethnic group.
2. China recognizes the community of this province as a regional minority and accepts that they are an indigenous group.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- A

Explanation:-

The Uighurs are a predominantly Muslim minority Turkic ethnic group, whose origins can be traced to Central and East Asia. . **Hence, statement 1 is correct.**

The Uighurs speak their own language, similar to Turkish, and see themselves as culturally and ethnically close to Central Asian nations.

The Uighurs are considered to be one of the 55 officially recognized ethnic minority communities in China.

However, China recognises the community only as a regional minority and rejects that they are an indigenous group. **Hence, statement 2 is incorrect.**



83. Consider the following countries:

1. Armenia
2. Portugal
3. Croatia
4. Romania
5. Belgium

Which of the above are members of the NATO ?

- (a) 1, 2 and 4 only
- (b) 1 and 3 only
- (c) 2 and 5 only
- (d) 2, 3, 4 and 5 only

Answer:-D

Explanation:-



84. India's single largest solar park by NTPC (National Thermal Power Corporation) is set to come up in the state of
- Gujarat
 - Rajasthan
 - Tamil Nadu
 - Uttar Pradesh

Answer:-B

Explanation:-

Bhadla Solar Park is the world's largest solar park located in India which is spread over a total area of 14,000 acres in Bhadla, Phalodi tehsil, Jodhpur district, Rajasthan, India. **Hence, option B is correct.**

The region has been described as "almost unlivable" due its climate. Average temperatures in Bhadla hover between 46 and 48 degrees Celsius. Hot winds and sand storms occur frequently. Bhadla is a sandy, dry and arid region with an area of about 45 km².

The Solar park has a total capacity of 2,245 MW

85. Consider the following statements about the Coastal Regulation Zone (CRZ) norms notified by the Ministry of Environment, Forest and Climate Change (MoEFCC):
- A No Development Zone (NDZ) of 2000 meters has been declared for all islands close to the mainland coast.
 - Temporary tourism facilities such as shacks, toilet blocks, change rooms etc. are not permitted on beaches.

Which of the statements given above is/are correct?

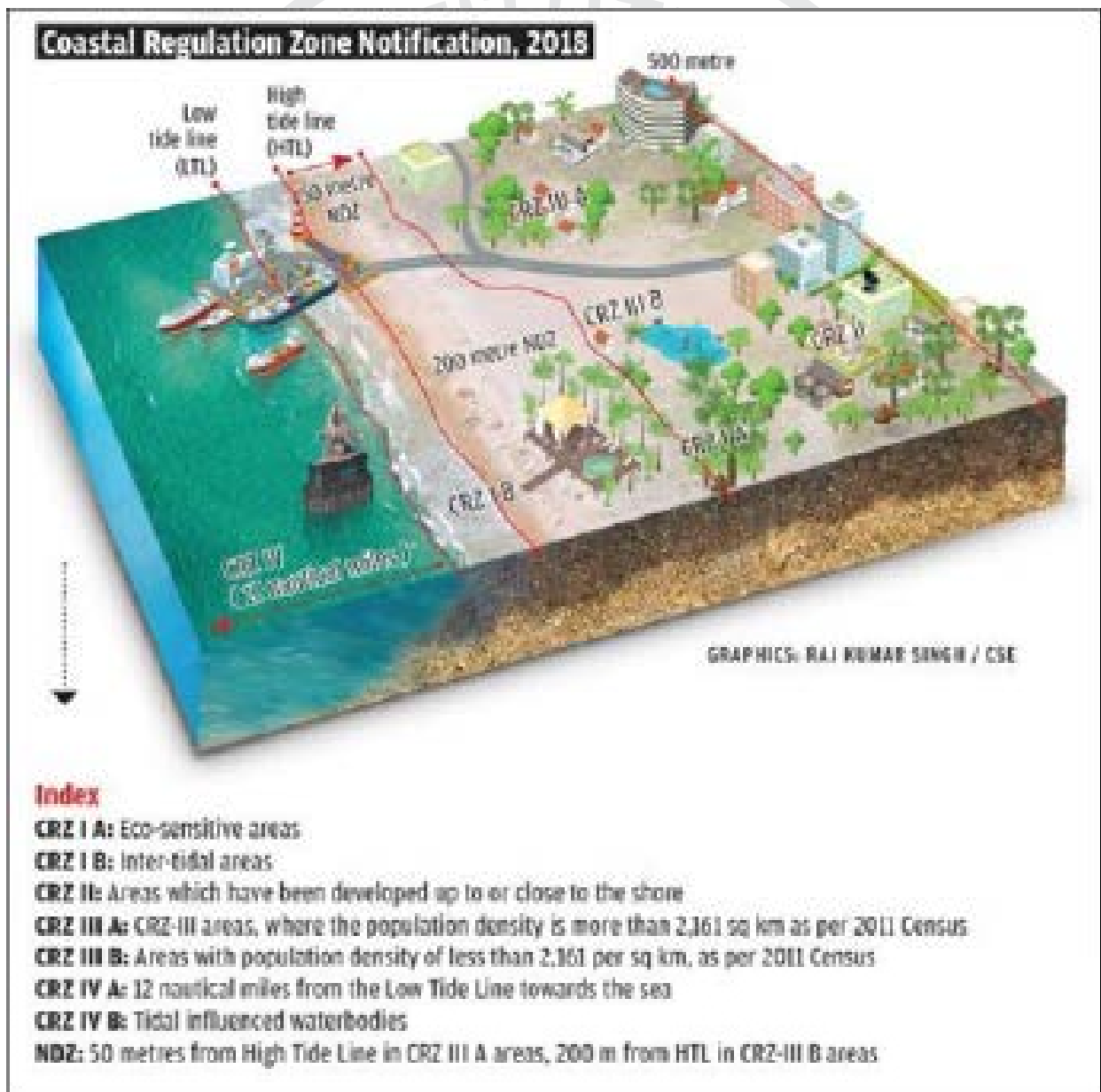
- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:- D

Explanation:-

A No Development Zone (NDZ) of 20 meters has been stipulated for all Islands (close to the mainland coast) under the Coastal Regulation Zone (CRZ) norms notified by the Ministry of Environment, Forest and Climate Change (MoEFCC). Densely populated rural areas will be provided greater opportunity for development. **Hence, statement 1 is incorrect.**

Temporary tourism facilities such as shacks, toilet blocks, change rooms, drinking water facilities etc. have now been permitted on beaches as against the earlier norm. **Hence, statement 2 is incorrect.**



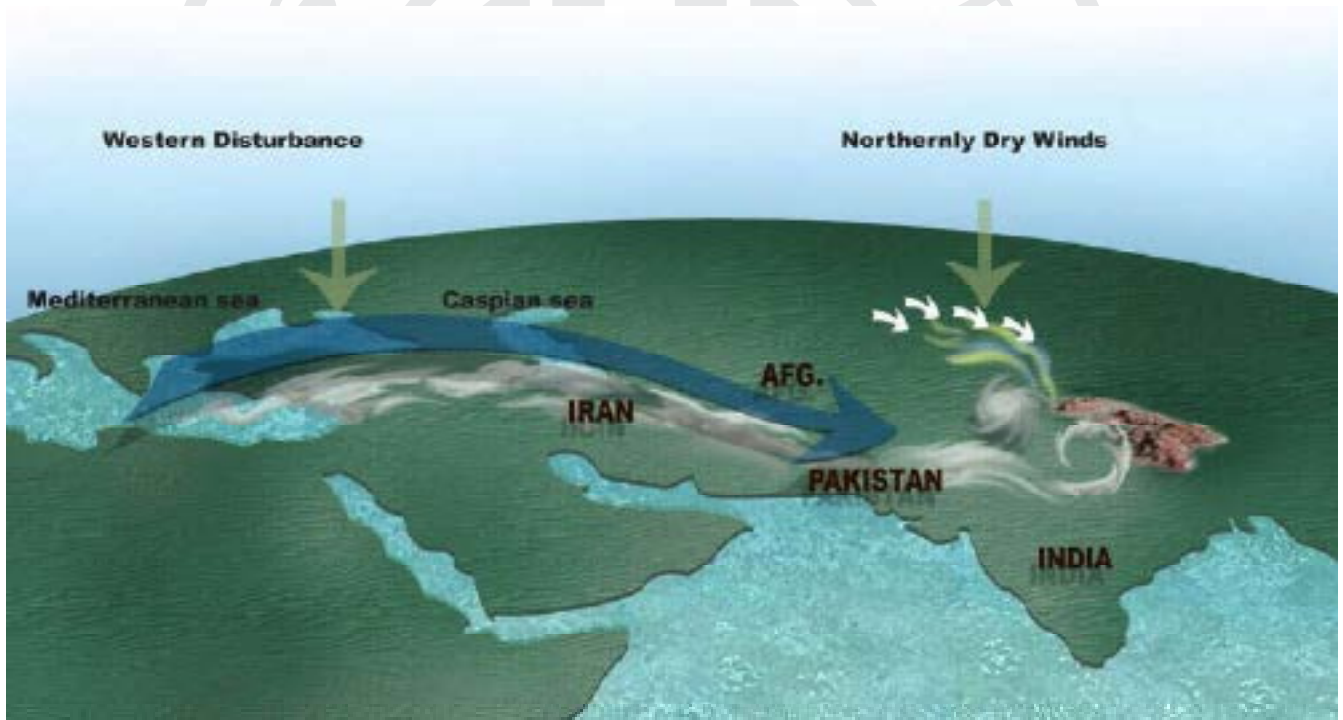
86. Indian subcontinent experiences 'Western Disturbances' during winter season. Such disturbances originate from _____ and end in _____?

- (a) Caribbean Sea, Philippine Sea.
- (b) Caspian Sea, South China Sea.
- (c) Mediterranean Sea, East China Sea.
- (d) East Sea, Mediterranean Sea.

Answer:- C

Explanation:-

- Western Disturbance is the name given to 'Temperate Cyclones', which originate over Mediterranean Sea. It is a low pressure area or a trough over surface or the upper-air in the westerly winds regime, north of 20°N.
- It causes changes in pressure, wind pattern and temperature fields. It is accompanied by cloudiness, with or without precipitation. The term Western Disturbance (WD) was coined by Indian meteorologists for describing the systems moving from the west to east direction.
- Western Disturbances form due to interaction of cold-dry polar air mass and warm-humid tropical air mass. The cyclone such formed due to interaction of warm and cold fronts moves eastwards, under the influence of westerlies.
- It travels to India via Iran, Afghanistan, Pakistan and moves onwards to China, where it finally reaches East China Sea and dissipates.



87. Consider the following pairs of Countries (locations) and Important reason for being in the news recently

1. Liverpool- UNESCO World Heritage Status has been stripped off
2. Pashupatinath Temple/Nepal - India's assistance in the construction of sanitation facility
3. Australia - Announced as host of the 2032 Olympics
4. Pakistan - Financial Action Task Force, or FATF, added this country to the 'grey list'.

How many pairs given above are correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

Answer:-C

Explanation:-

Liverpool :- UNESCO World Heritage Status has been stripped off. Liverpool has been stripped of its World Heritage status after a UN committee found developments threatened the value of the city's waterfront. The decision was made following a secret ballot by the Unesco committee at a meeting in China. **Hence, option 1 is correct.**

Pashupatinath Temple/Nepal :- India's assistance in the construction of sanitation facility. India has pledged to construct a Rs 2.33 crore sanitation facility at the iconic Pashupatinath Temple complex here to improve the infrastructure in the holy shrine for the pilgrims, according to an official statement. **Hence, option 2 is correct.**

Australia:- Announced as host of the 2032 Olympics. The 2032 Summer Olympics, officially known as the Games of the XXXV Olympiad and also known as Brisbane 2032, will be an international multi-sport event scheduled to take place from 23 July to 8 August 2032, in Brisbane, Queensland, Australia. Interim emblem for election as host city. **Hence, option 3 is correct.**

Malta :- Financial Action Task Force, or FATF, added this country to the 'grey list'. Malta was recently upgraded by the Financial Action Task Force (FATF) after being taken off the list of Jurisdictions under Increased Monitoring, informally known as the 'grey list'. **Hence, option 4 is incorrect.**

88. Consider the following pairs:

Region often mentioned in the news :: Country

1. Baltic Sea - The navies of India and Russia concluded the 12th edition of the biennial Exercise Indra.
2. Black Sea - The sinking of the huge Russian warship Moskva.
3. Pangong Tso - The continued border tension between India and China in Ladakh.

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- D

Explanation:-

Baltic Sea :- The navies of India and Russia concluded the 12th edition of the biennial Exercise Indra Navy at Volgograd, Russia in the Baltic Sea. e-ranging and diverse activities across the spectrum of maritime operations. The navies of India and Russia concluded the 12th edition of the biennial Exercise Indra Navy in Baltic Sea, the Navy said on Friday. The Army version of the exercise is scheduled to be held from August 1 to 13 in Volgograd. "The primary aim of this year's edition is to further consolidate inter-operability built up by the two Navies over the years and also to enhance understanding and procedures for multi-faceted maritime operations," a Navy statement said. **Hence, option 1 is correct.**

Black Sea :- The sinking of the huge Russian warship Moskva. **Hence, option 2 is correct.**

Pangong Tso :- The continued border tension between India and China around Pangong-Tso lake in Ladakh. **Hence, option 3 is correct.**

89. Which among the following can be found in the 'Nilgiri Biosphere Reserve' of India?

- 1. Nilgiri Tahr**
- 2. Indian Bustard**
- 3. Lion - Tailed Macaque**
- 4. Red Panda**

Select the correct answer using the code given below:

- (a) 1 and 3 only**
- (b) 2 and 3 only**
- (c) 3 and 4 only**
- (d) 2, 3 and 4 only**

Answer:- A

Explanation:-

The Nilgiri tahr inhabits the open montane grassland habitats at elevations from 1200 to 2600 m (generally above 2000 m) of the South Western Ghats. **Hence, point 1 is correct.**

Their significant concentration is in the Nilgiri Hills, with smaller populations in the Anamalai Hills, Periyar National Park, Palni Hills.

Historically, the great Indian bustard was distributed throughout Western India, spanning 11 states, as well as parts of Pakistan. Its stronghold was once the Thar desert in the north-west and the Deccan plateau of the peninsula. Today, its population is confined mostly to Rajasthan and Gujarat. **Hence, point 2 is incorrect.**

The lion-tailed macaque is an Old World monkey endemic to the Western Ghats of South India. **Hence, point 3 is correct.**

In India, Red Panda is found in Sikkim, western Arunachal Pradesh, Darjeeling district of West Bengal and parts of Meghalaya. It is also the state animal of Sikkim. Listed as Endangered in the IUCN red list of Threatened Species and under Schedule I of the Indian Wildlife (Protection) Act, 1972, the red panda has the highest legal protection at par with other threatened species. **Hence, point 4 is incorrect.**

90. Select the correct answer with reference to Gharials

- (a) It survives in several severely fragmented populations in India and Myanmar
- (b) Katarniaghat Wildlife Sanctuary is associated with Gharials in India
- (c) It is protected under Schedule-II of Wild Life (Protection) Act, 1972
- (d) Project Crocodile: by CITES and UNDP in 1975

Answer:- B

Explanation:-

Gharials:

Asian crocodiles are distinguished by their long, thin snouts which resemble a pot (ghara in Hindi)

Distribution:

It was once found across Bangladesh, Bhutan, India, Myanmar, Nepal and Pakistan. However, currently, it survives in **several severely fragmented populations in India and Nepal.**

Hence, statement (a) is incorrect.

Indian habitat:

Son River, Girwa River, the Ganges, Mahanadi River and the Chambal River.

Protected areas:

National Chambal Sanctuary and Katarniaghat Wildlife Sanctuary.

Habitat:

It prefers to live in riverine habitats with deep, clear, fast-moving water and steep, sandy banks.

Protected status:

Wild Life (Protection) Act, 1972: Schedule I. **Hence, statement (b) is incorrect.**

CITES: Appendix I.

IUCN Red List: Critically Endangered

Threat:

Construction of Dam, barrages, and water abstraction

Entanglement in fishing nets,

River bed cultivation

sand mining.

Project Crocodile: UNDP and FAO in 1975. It included an intensive captive rearing and breeding programme intended to revive the dwindling gharial population. **Hence, statement (d) is incorrect.**

91. With reference to Indian history, consider the following pairs:

Ancient Temple :: State

1. Konark Temple – Orissa
2. Jagatpita Brahma Mandir– Rajasthan
3. Kailashnath Temple – Uttarakhand

How many pairs given above are correctly matched?

- (a) None of the pairs
- (b) Only one pair
- (c) Only two pairs
- (d) All three pairs

Answer:- C

Explanation:-

Konark Sun Temple, Odisha

UNESCO World Heritage Site, the Konark Sun Temple was built in the 13th century by the Kings of the Eastern Ganga dynasty. The gigantic structure, now in shambles, stands without the vimana, or the main sanctum, which was 229 feet tall. **Hence, statement 1 is correct.**

Jagatpita Brahma Mandir, Pushkar, Rajasthan

Although the present structure is from the 14th century, the temple itself is believed to have been built some 2,000 years ago by sage Vishwamitra. One of the few temples dedicated to Lord Brahma, the Jagatpita Brahma Temple is built of marble and stone with motifs of the hamsa, or a swan. **Hence, statement 2 is correct.**

Kailashnath Temple, Ellora

A mammoth and impressive structure carved out of a single rock, the Kailashnath, or Kailasa, temple is the 16th cave among the 34 stunning caves of Ellora. Believed to be built in the eighth century, this majestic temple is built in the Pallava style. **Hence, statement 3 is incorrect.**

92. With reference to Medieval Indian history, consider the following pairs:

Dynasties:: Historical person

1. Bahamani - Zafar Khan
2. Chalukhyas - Satyashraya
3. Slave dynasty - Qutb-ud-din Aibak

How many pairs given above are correctly matched?

- (a) None of the pairs
- (b) Only one pair
- (c) Only two pairs
- (d) All three pairs

Answer:-D

Explanation:-

Panchavas (West tanks and Upper Ganga)	Vishnug	773-793
	Nagabhata I	768-805
	Bhoja Mahipala	808-842
Cholas of Thanjavur (South India)	Narasimha I	901-1011
	Rajendra	1014-1044
	Kalithunga I	1070-1118
Cholas of Kaveri (River and Coastal District)	Satya Shriya	980-1008
	Sriyashriya I	1008-1058
	Vijayashriya VI	1076-1126
	Somaswami V	1131-1189
Sivya Dynasty	Qutub-Din Aibak	1206-1210
	Arshad Shah	1210-1211
	Shams-ud-Din Iltutmish	1211-1226
	Rukn-ud-Din Firuz	1236-1247
	Jalal-ud-Din Khalji	1247-1260
	Muhammad-Bin Tughlaq Shah	1240-1242
	Alau-ud-Din Muhammad	1301-1308
	Shah-ud-Din Muhammad	1308-1320
	Ghiyas-ud-Din Balban	1266-1286
	Muhammad-Bin Tughlaq Shah	1286-1290
Shams-ud-Din Kaykhan	1290	
Khalji Dynasty	Jalal-ud-Din Khalji	1290-1296
	Rukn-ud-Din Balban	1296
	Alau-ud-Din	1308-1316
	Shihab-ud-Din Uzun	1316-1318
	Qutub-ud-Din	1316-1320
Tughlaq Dynasty	Nasir-ud-Din Mahmud Khan	1320
	Ghiyas-ud-Din Tughlaq	1320-1324
	Muhammad Bin Tughlaq	1324-1351
	Firuz Shah Tughlaq	1351-1388
	Tughlaq II	1388-1399
	Alau-ud-Din	1399-1400
Muhammad II	1400-1401	
Alau-ud-Din	1401	
Sayyid Dynasty	Muhammad	1401-1413
	Khalji Khan	1413-1414
	Mubarak Shah	1414-1454
Tughlaq Dynasty	Muhammad	1454-1465
	Alau-ud-Din	1465-1481

93. Which one of the following statements about Sangam literature/period in ancient South India is correct?

- All the three Sangams took place at same place under the patronage of the Pandya kings.
- Women contributed to sangam literature but not in economic activities.
- Agricultural operations were generally carried on by the members of the lowest class known as kadaiyyar.
- Sangam period was completely unaware about Foreign trade.

Answer:- C

The Sangam age refers to that period in the early history of south India when large numbers of poems in Tamil were composed by a number of authors. . The term Sangam refers to an assembly or “meeting together” of Tamil poets. Traditionally, three Sangams or assemblies are believed to have been convened one after the other. All the three Sangams took place at different places under the patronage of the Pandya kings of Madurai. **Hence, statement (a) is incorrect.**

Women in the Sangam period appear to have been educated. This is testified by many poems contributed by women poets to the Sangam literature. Women are also described as engaged in various economic activities such as paddy plantation, cattle rearing, basket-making, spinning, etc. **Hence, statement (b) is incorrect.** However, the cruel practice of Sati was also prevalent in Tamil society, and it was known as tippayadal. But it was not obligatory as there are references to widows present in society. However, their position was miserable as they were prohibited to decorate themselves or participate in any form of amusement.

The class of warriors was an important element in society during the Sangam age. Captains of the army were invested with the title of enadi at a formal ceremony. Civil and military officers were held under both the Cholas and the Pandyas by vellalas or rich peasants. The ruling class was called Arasar and its members had marriage relations with the vellalas. The rich did not plough land themselves but employed labourers for this purpose. Agricultural operations were generally carried on by the members of the lowest class known as kadaiyyar. **Hence, statement (c) is correct.** We notice sharp social inequalities in the Sangam age. The rich lived in houses of brick and mortar and the poor in huts and humbler structures.

In the cities, the rich lived in the upper storey of their house. The Sangam texts refer to many settlements including Kaveripattanam whose flourishing existence is now attested archaeologically. They also speak of the Yavanas (foreigners) coming in their own vessels purchasing pepper with gold and supplying wine and women slaves to the natives. This trade is not known only from Latin and Greek writings but also from archaeological records. The Sangam literature is a very major source of our information for the social, economic and political life of the people living in deltaic Tamil Nadu in the early Christian centuries. **Hence, statement (d) is incorrect.** Aṇaṅku is a phenomenon of sacred power described in ancient Tamil literature such as the Sangam literature. This sacred magical forces were supposed to inhabit various objects, which eventually determined there association with the society.

- 94. Ain-i-Akbari or the "Administration of Akbar", is a 16th-century detailed document recording the administration of the Mughal Empire under Emperor Akbar, written by**
(a) Abdul Rahim Khan-i-Khanan
(b) Kamran Mirza
(c) Abu'l Fazl
(d) Askari Mirza

Answer:- C

Explanation:-

Ain-i-Akbari is a 16th century document.

Written by: Akbar’s court historian Abu'l Fazl in Persian language.

Deals with: the administration of Mughal Emperor Akbar.

95. **Adi Shankaracharya, the prime mover behind Advaita Vedanta, composed many commentaries and songs to spread his message far and wide.**

Which of the following are his compositions?

1. **Vivekachudamani**
2. **Saundarya Lahari**
3. **Bhaja Govindam**
4. **Nirvana Shatakam**

Select the correct answer using the code given below:

(a) 1, 2 and 3 only

(b) 1, 3 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

Answer:- D

Explanation:-

Vivekachudamani. It's a Sanskrit verse. It has the form of dialogue where the master explains to the disciple the nature of the Atman and the ways to research and know the Atman. The book takes the disciple on a step by step instructions to reach Brahman. It talks about qualifications required by a good student to absorb the knowledge of Vedanta. **Hence, option 1 is correct**

Saundarya Lahari. It means the 'waves of beauty'. Its hundred and three shlokas (verses) eulogize the beauty, grace and munificence of Goddess Parvati / Dakshayani, consort of Shiva. It is not only the collection of holy hymns, but also a tantra textbook. **Hence, option 2 is correct**

Bhaja Govindam. It's a very popular devotional stotra by Shankara that underscores the view that Bhakti to God is an important part of general spirituality. It is generally considered a summary of Advaita Vedanta philosophy. In it, Shankara emphasizes the importance of devotion for God as a means to spiritual development and to liberation from the cycle of birth and death. It is a reminder that Shankara, who is often regarded as a stalwart advocate of the Jnana Marga also appreciated the Bhakti Marga. The rendition of this hymn by M.S. Subbulakshmi is very popular and appreciated for her immaculate pronunciation. **Hence, option 3 is correct**

Atma Shatakam (aka Nirvana Shatakam). It's a composition by Shankara summarizing the basic teachings of Advaita Vedanta. It is said that when he was a young boy of eight and wandering near River Narmada, seeking to find his guru, he encountered the seer Govinda Bhagavatpada who asked him, "Who are you?". The boy answered with these stanzas. Every stanza enumerates what he is not and then ends with the phrase 'chidanandarupahshivohamshivoham.' Upon these, Swami accepted him as a disciple. **Hence, option 4 is correct**

96. With reference to features on Mahabalipuram Temple, consider the following statement.

1. It is built under the patronage of the Pallava rulers
2. The temple has both shiva and vishnu shrine
3. Dvarapalas at the entrance are absent in Mahabalipuram temple

Select the correct answer from code given below

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:-A

Explanation:-

Mamallapuram, also known as Mahabalipuram, was an important port town during India's early history and developed as a key center for artistic activity under the patronage of the Pallava rulers. Nrasimhavarman I, who took the epithet Mamalla (meaning "great warrior"), ruled for about 38 years beginning in 630 C.E. and sponsored a large number of rock-cut monuments at Mamallapuram, including cave shrines, monolithic temples, and large sculptures carved out of boulders. **Hence, statement 1 is correct**

While the Pallava kings primarily worshipped the god Shiva, they also supported the creation of temples dedicated to other Hindu gods and goddesses and to other religious traditions such as Jainism. The Pallava rulers were particularly inspired by the growing personal devotional movement known as bhakti, in which worshippers approach the divine as a cherished child or loved one. **Hence, statement 2 is correct.**

The entrance to the temple complex is from the western gateway, facing the smaller Shiva shrine. On each side of the gateway stand door guardians known as dvarapalas who welcome visitors to the complex and mark the site as sacred. **Hence, statement 3 is incorrect**

97. Which one of the following statements best describes the cells in Bone Marrow of human body?

- (a) Red bone marrow contains mesenchymal stem cells, or marrow stromal cells.
- (b) Yellow bone marrow consists of a delicate, highly vascular fibrous tissue containing hematopoietic stem cells.
- (c) Bone marrow contains two types of stem cells.
- (d) Mesenchymal stem cells are blood-forming stem cells.

Answer:- C

Explanation:-

Bone marrow contains two types of stem cells: mesenchymal and hematopoietic. Red bone marrow consists of a delicate, highly vascular fibrous tissue containing hematopoietic stem cells. These are blood-forming stem cells. Yellow bone marrow contains mesenchymal stem cells, or marrow stromal cells.

98. Consider the following statements:

1. Bio-similar drugs are identical copies of biological drugs made through the help of biotechnology.
2. The Bio-Similar drugs are made from natural sources only.
3. Bio-similar drugs are a generic version of the biologic drug.

Select the correct answer from code given below:

- (a) 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1 only

Answer:- D

Explanation:-

A bio-similar (also known as follow-on biologic or subsequent entry biologic) is a biologic medical product that is almost an identical copy of an original product that is manufactured by a different company. **Hence, statement 1 is correct**

The source of Bio-Similar drugs can be natural as well as synthetic. **Hence, statement 2 is incorrect.**

Generic drugs are usually an exact copy of the parent drug. However, it is impossible to manufacture similar copies of biologics. Thus though bio-similar are similar to their biologic's counterpart in terms of safety and effectiveness they are not generic versions of biologics. **Hence, statement 3 is incorrect**

99. Consider the following statements regarding Gel electrophoresis.

1. It is used to separate DNA fragments.
2. It involves running a current through a gel containing the molecules of interest.
3. Determining the absolute size of a piece of DNA is not possible through this technique.

Select the correct answer from code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer:- A

Explanation:-

Gel electrophoresis is a technique used to separate DNA fragments (or other macromolecules, such as RNA and proteins) based on their size and charge. Electrophoresis involves running a current through a gel containing the molecules of interest. Based on their size and charge, the molecules will travel through the gel in different directions or at different speeds, allowing them to be separated from one another. **Hence, statement 1 and 2 is correct.**

All DNA molecules have the same amount of charge per mass. Because of this, gel electrophoresis of DNA fragments separates them based on size only. Using electrophoresis, we can see how many different DNA fragments are present in a sample and how large they are relative to one another.

We can also determine the absolute size of a piece of DNA by examining it next to a standard "yardstick" made up of DNA fragments of known sizes. **Hence, statement 3 is incorrect.**

100. Consider the following:

- 1. Higher Concentration of Hydrogen ions in the Water**
- 2. Waste Disposal**
- 3. Raised Carbon IV oxide Concentration in the Atmosphere**
- 4. Improper Land Management**

Which of the above are reasons behind ocean acidification?

- (a) 1, 2 and 3 only**
- (b) 2 and 4 only**
- (c) 4 only**
- (d) 1, 2, 3 and 4**

Answer:-D

Explanation:-

Higher Concentration of Hydrogen ions in the Water

At the sea beds, there are some chemical reactions that may take place, and they can have negative impacts on the quality of the ocean water. Such reactions may include the increase in hydrogen ions which, when combined with other compounds such as nitrogen, water, among other gases, and their reactions lead to ocean water acidity. **Hence, statement 1 is correct.**

Waste Disposal

Disposal of wastes has been a challenge to many countries. As for those that border seawater masses, they have been too quick on using the oceans as the possible dumping grounds of domestic and industrial wastes. Nonetheless, as the atmosphere shoulders the brunt of poisonous gases, sea waters are on the receiving end of dangerous liquid wastes. **Hence, statement 2 is correct.**

Raised Carbon IV oxide Concentration in the Atmosphere

Sometimes, the harm induced in the atmosphere can spread into the waters. This is when carbon dioxide is released into the atmosphere through various human activities. This, in turn, contaminates the water because the carbon gases get to be dissolved in the sea waters, and this lowers the pH of the water, contributing to acidification. **Hence, statement 3 is correct.**

Improper Land Management

Agriculture may also contribute to the problem of ocean acidity. It may happen especially when the methods that are employed by the farmers are not suitable. **Hence, statement 4 is correct.**

These are methods that may be prone to soil erosion, and in the process, the chemicals are washed downstream into the ocean. In short, if the land is poorly managed, the water masses can be hit by the impact of acidifying soil mineral content and water pollution.