

Q.1) The sum of height of A and B is more than that of C and D taken together. The sum of height of A and C is the same as B and D taken together. Moreover, A's height is half of the sum of height of B and D. Who is tallest?

- a) A
- b) B
- c) C
- d) D

Ans) b

Exp) Option b is the correct answer.

Given,

$$A + B > C + D \quad \dots (1)$$

$$A + C = B + D \quad \dots (2)$$

$$A = 1/2(B + D) \quad \dots (3)$$

From (2) and (3),

$$C = 1/2(B + D) \text{ or } A = C \quad \dots (4)$$

From (1) and (4), $B > D$

As per equation (3), A (or C) is the mean of the values of B and D. Hence, its value must fall between B and D.

So, $B > C = A$ and $B > D$.

Hence, B is the tallest.

Q.2) Consider the Statement and Assumptions given below:

Statement: This book is invested to guide the layman to study cooking in the absence of a teacher.

Assumptions:

A. A teacher of cooking may not be available to everyone.

B. One can learn cooking only by book.

Consider the Statement and decide which of the given Assumption(s) is/are implicit?

- a) Only (A) is implicit
- b) Only (B) is implicit
- c) Both (A) and (B) are implicit
- d) Neither (A) nor (B) is implicit.

Ans) a

Exp) Option a is the correct answer.

The book is intended to teach in the absence of a teacher. From this we can enter that the absence of teacher is a possibility, thus assumption A is valid. While Assumption B is not implicit as it states "One can learn cooking only by book" but we know cooking can be learnt by teacher also.

Q.3) With reference to Indian Polity, the concept of 'Principled Distance' is related to:

- a) Judicial Activism and Parliamentary Approval
- b) Dual Polity Federal Structure
- c) Separation between religion and state
- d) Indestructible nature of States

Ans) c

Exp) Option c is the correct answer.

'Principled Distance' is a **new model of secularism**. The separation of government institutions and persons mandated to represent the state from religious institutions and religious dignitaries.

In India separation between religion and state did not mean their mutual exclusion but rather principled distance. It allows the **state to be distant from all religions so that it can intervene or abstain from interference**, depending upon which of these two would better promote liberty, equality and social justice.

Source: NCERT Class XI Indian Constitution at Work

Q.4) Which of the following items will **not** be taken into consideration during the calculation of Gross Domestic Product?

1. Net increase in Inventory of businesses
2. Household expenditure on services
3. Government expenditure on public goods & services
4. Brokerage paid for the transfer of shares
5. Transfer Payments made by the Government
6. Import of agricultural commodities

Select the correct answer using the code given below:

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

Ans) d

Exp) Option d is the correct answer.

Calculation of Gross Domestic Product (GDP) - the value of goods and services produced in a country's economy - is one of the ways of calculating the national income of a country. There are multiple methods which may be used for calculating this figure. One of these methods is the Expenditure method.

$$\mathbf{GDP = C + G + I + X}$$

Where, C is the consumptive expenditures of firms and households in an economy; G is the expenditure made by the government, I is the investment made by the household and the firms; and X is the Net of Exports and Imports in an economy.

Option 1 is incorrect: An **increase in Inventory (goods/ raw materials stocked** for production/ sale later) is considered as a form of **Capital Formation**, i.e., **Investment** by a firm. Hence it will be **included under the 'I' head** of the equation.

Option 2 is incorrect: **Expenditure on various services** by a **household** (example - paying **plumbers and electricians**, buying movie tickets, **booking cabs**, etc) is one of the **core economic activities** in a nation. It is **included** under the **'C' head** of the equation.

Option 3 is incorrect: The **expenses** incurred by the **government** to provide **public good and services** like **roads** (buying materials, hiring labour, etc), **free primary education** (constructing school buildings, paying salaries to teachers, etc) all would be **included** under the **'G' head** of the equation and hence included in calculation of GDP.

Option 4 is incorrect: When assets such as bonds and shares are procured, it signifies a change in ownership and does not affect the value of goods and services; hence, the transactions are not involved in expense calculation. However, **the brokerage paid for the transfer of shares is considered while using the expenditure method.**

Option 5 is correct: **Transfer Payments** are **one sided economic transaction** where a service or sum of money is provided without any service or monetary consideration in return. For example, **donations to charities, international aid** to poor war-torn countries, etc. Since these transactions **don't create any new value** of goods and services, they are **not included in the GDP.**

Option 6 is incorrect: **All imports**, whether of **agricultural commodities** for **food security** purposes (like **edible oil imports**) or **luxury item imports** like **gadgets**, etc, are **included** under the **head of 'X'** in the equation and hence included in the calculation for GDP.

Source: <https://corporatefinanceinstitute.com/resources/knowledge/economics/expenditure-method/>

NCERT Class 12 Economy - Macroeconomics, Ch-2

Q.5) A person named 'D' is involved in a car accident in the state of Maharashtra. As a result, Maharashtra civil court grants person 'D' Rs. 10,000 in damages. But the defendant person who ran into person 'D' lives in Rajasthan and refuses to pay 'D'. In such scenario, which one of the following statements is correct?

- Person 'D' has to file a fresh appeal against the defendant in the civil court of Rajasthan in order to get relief.
- The defendant has to pay the damages as the orders of civil courts in any part of India are capable of execution anywhere within India.
- The defendant will not have to pay the damages as he is not the resident of the state of Maharashtra.
- Person 'D' will have to seek remedy from the Supreme Court of India as the court of one state cannot enforce the penal laws of another state.

Ans) b

Exp) Option b is the correct answer.

Under the Constitution, the jurisdiction of each state is confined to its own territory. Hence, it is possible that the acts and records of one state may not be recognised in another state. To remove any such difficulty, the Constitution contains the **"Full Faith and Credit" clause.**

Under this clause, **final judgements and orders of civil courts in any part of India are capable of execution anywhere within India (without the necessity of a fresh suit upon the judgement).** The rule applies **only to civil judgements and not to criminal judgements.** In other words, it does not require the courts of a state to enforce the penal laws of another state.

Since, the nature of the case in the above illustration is civil, the judgement of civil court is applicable for execution anywhere within India. Hence, the defendant has to pay the damages as the orders of civil courts in any part of India are capable of execution anywhere within India.

Source: Laxmikanth Chapter 12 Inter-State Relations

Q.6) With reference to 'Carbon Dating Method', consider the following statements:

- It can determine the age of organic materials older than sixty thousand years.
- It cannot be used to determine the age of non-living things like rocks.

3. It can be used to study the origins and evolution of various life forms on the earth.

Which of the statements given above is/are correct?

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

Ans) c

Exp) Option c is the correct answer.

Carbon dating is a widely-used method to establish the age of organic materials, things that were once living. It can be estimated by measuring the amount of carbon-14 isotope present in the subject.

Statement 1 is incorrect: Carbon dating method **cannot determine the age of organic materials older than the 60 thousand years.** Organic materials that are even older than about 40,000 years are extremely difficult. This is because after 8-10 cycles of half-lives, the amount of C-14 becomes almost very small and is almost undetectable. Over 60,000 years old, and they can't be dated at all.

Statement 2 is correct: The Carbon Dating method **cannot be used to determine the age of non-living things like rocks.** Carbon dating is used by archeologists to date trees, plants, and animal remains; as well as human artifacts made from wood and leather; because these items are generally younger than 50,000 years. A living organism takes in both carbon-12 and carbon-14 from the environment in the same relative proportion that they existed naturally. Once the organism dies, it stops replenishing its carbon supply, and the total carbon-14 content in the organism slowly disappears. Scientists can determine how long ago an organism died by measuring how much carbon-14 is left relative to the carbon-12.

Statement 3 is correct: Carbon Dating is used in archaeology to determine the age of artefacts and ruins and ascertain the scientific basis of ancient civilizations. Carbon dating has a host of other uses in fields of forensics and criminal investigations, and in **studying the origins and evolution of various life forms on the earth.**

Source: <https://blog.forumias.com/what-is-carbon-dating-and-how-does-the-varanasi-court-order-impact-the-dispute/>

Explained: What Is Carbon Dating And How Is It Relevant To The Gyanvapi Mosque Row? (outlookindia.com)

Q.7) The Union Budget 2023–24 is proposed to be the budget of the Amrit Kaal that will be guided by seven priorities known as the 'Saptarishi'. The seven priorities, termed as Saptarishi mentioned in the Budget includes which among the following?

1. Inclusive Development
2. Health & Well Being
3. Infrastructure and Investment
4. Minimum Government Maximum Governance
5. Youth Power

Select the correct answer using the code given below:

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

d) 1, 3, 4 and 5 only

Ans) b

Exp) Option b is the correct answer.

Options 1, 3 and 5 are correct. Union Finance Minister announced the first budget (Union Budget 2023-24) in Amrit Kaal that will be guided by seven priorities that complement each other and act as the 'Saptarishi'. The seven priorities, termed Saptarishi, adopted in the Union Budget for FY 2023-24 to guide the country towards 'Amrit Kaal', thus providing a blueprint for an empowered and inclusive economy, are:

1) Inclusive Development

2) Reaching the Last Mile

3) Infrastructure and Investment

4) Unleashing the Potential

5) Green Growth

6) Youth Power

7) Financial Sector

Options 2 and 4 are incorrect. The Budget 2021 was based on six pillars - Health & Well Being; Physical & Financial Capital and Infrastructure; Inclusive Development for Aspirational India; Reinvigorating Human Capital; Innovation and R &D; and Minimum Government Maximum Governance.

Source: <https://www.india.gov.in/spotlight/union-budget-2023-2024>

Directions for the following 2(two) items:

Read the following two passages and answer the item that follows the passages. Your answers to these items should be based on the passages only.

PASSAGE 1 (Q.8)

Despite the empirical challenge of the collapse of the Soviet system – and more importantly the failure of centrally controlled economies throughout the West and the Third World, socialists have rallied to parade alternative conceptions of the communal ownership and control of resources. Market socialism, for instance, tolerates a predominantly market system but demands that certain 'essential' resources be controlled by the state. These may then act to direct the general economy along politically desirable roads: for example, expanding technology companies, educational and health services, or the economic and physical infrastructure of the nation. Others argue that while markets should predominate, the state should control only the investment industry.

Q.8) Which of the following statements is/are correct inference in regard to the idea of socialism in the above passage?

1. Many socialists completely abandoned state ownership in favor of controlled free market economy.
2. Many socialists claim that resources need to be radically redistributed.
3. State intervention in economy produces an inefficient outcome.

Select the correct answer from the code given below:

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

Ans) c

Exp) Option c is the correct answer.

Statement 1 is incorrect: The line “.....the failure of centrally controlled economies throughout the West and the Third World, socialists have rallied to parade alternative conceptions of the communal ownership and control of resources. “So, many socialists abandoned the ideas of the state ownership. Now they are adopting market socialism that tolerates a predominantly market system but demands that certain ‘essential’ resources be controlled by the state. Thus, it makes it clear that they only want partial or controlled market economy.

Statement 2 is incorrect: The passage does not mention about the distribution of resources. So, it would be incorrect to infer that socialists are also demanding radical redistribution of resources. Further, the socialists have been moving towards the alternative conceptions of the communal ownership and control of resources.

Statement 3 is correct: The line “..... **failure of centrally controlled economies throughout the West and the Third World**, socialists have rallied to parade alternative conceptions of the communal ownership and control of resources.” shows that state intervention in economy had produced an inefficient outcome leading to economic failures. This is why many socialists are arguing for adoption of market socialism, and even predominance of the markets.

PASSAGE 2 (Q.9)

Normally, the individual thinks that on waking up from dream, he is back to reality, but according to Ramana Maharshi, he has only come from one unreal world to another unreal world. There is no difference between the images that one sees in dreams and images of the world that he sees during the waking state. During the waking state, it is day-dream and during the dream state, it is night dream. The only difference is while the dream lasts for a short while, the waking lasts longer. The real awakening is sleeping in relation to the world and waking in relation to the Self. It means transcending oneself from all the three states and realising the Self in the fourth state of Turiya.

Q.9) With reference to the passage, the following assumptions have been made:

1. The nature of dreams and the world is similar and both are unreal.
2. Only Self realisation can lead to true happiness.

Which of the above assumptions is/are valid?

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

Ans) a

Exp) Option a is the correct answer.

Statement 1 is correct: The passage mentions, "During the waking state, it is day-dream and during the dream state, it is night dream." This makes it clear that nature of dreams is similar. Also, the passage mentions that waking up from a dream doesnot mean one is back to reality but has only come from one unreal world to another unreal world. Thus, both are unreal as well.

Statement 2 is incorrect: The passage only mentions that the real awakening is sleeping in relation to the world and waking in relation to the Self. But it does not mention any relation between the Self realisation and the true happiness. So, it is an incorrect assumption.

Q.10) Which of the following is the most appropriate definition of 'Freedom'?

- It is the privilege to do whatever one likes.
- It means absence of any type of rules and regulations.
- It is the condition in which people can develop their capabilities.
- It means the complete absence of restraints and constraints.

Ans) c

Exp) Option c is the correct answer.

The term 'Freedom' means the absence of restraints on the activities of individuals, and **at the same time, providing opportunities for the development of individual personalities.**

Freedom or Liberty, as elaborated in the Preamble, is very essential for the successful functioning of the Indian democratic system. **Absence of constraints is only one dimension of freedom. Freedom is also about expanding the ability of people to freely express themselves and develop their potential.** Freedom in this sense is the condition in which people can develop their creativity and capabilities.

However, Freedom does **not mean 'license' to do what one likes and has to be enjoyed within the limitations** mentioned in the Constitution itself. In brief, the freedom conceived by the Preamble or fundamental rights is **not absolute but qualified.**

Any form of social living **requires some rules and regulation. These rules may require some restraints to be imposed on the freedom of individuals but it is recognised that such constraints may also free us from insecurity and provide us with the conditions in which we can develop ourselves.** In political theory much of the discussion regarding freedom has therefore focused on trying to evolve principles by which we can distinguish between socially necessary constraints and other restrictions. To understand which social constraints are necessary, discussions on freedom need to look at the core relationship between the individual and the society (or group, community, or state) within which she/he is placed.

Hence, in the above question, the **most appropriate definition of Freedom** is the condition in which people can develop their creativity and capabilities.

Source: NCERT XI, Political theory, chapter 2

Q.11) In the context of financial markets in India, which of the following activities would be most appropriately considered as "Short Selling"?

- When an investor sells the equities at a pre-determined price and on a pre-determined date.
- When an investor sells a large quantity of equities he owns in a very short period of time.
- When an investor sells borrowed securities and intends to buy them later at cheaper price.
- When an investor sells a security owned by him at the current market price.

Ans) c

Exp) Option c is the correct answer.

The Securities and Exchange Board of India (Sebi) defines short selling as the sale of a security or share that the seller does not own. In short selling, an investor sells borrowed shares in the market in the hope of buying them back at a cheaper price. In short selling, an investor holds a short position after anticipating a decrease in the value of a stock.

Short selling is a complex trading strategy that is based on speculation, much like betting. The most basic way to define short-selling is speculating about the decline in a stock and then betting against it.

Option a is incorrect. A limit order in the financial markets is a direction to purchase or sell a stock or other security at a specified price.

Option b is incorrect. A Sell-Off occurs when a large volume of securities is sold in a short period of time, causing the price of a security to fall in rapid succession. As more shares are offered than buyers are willing to accept, the decline in price may accelerate as market psychology turns pessimistic.

Option d is incorrect. A market order is an order to buy or sell a preowned security immediately at market prices. This type of order guarantees that the order will be executed, but does not guarantee the execution price means the order will be executed at the market price. A market order generally will execute at or near the current bid (for a sell order) or ask (for a buy order) price.

Q.12) Consider the following pairs about biotic interaction and its examples?

Biotic interaction	Example
1. Commensalism	Association between the cattle egret and grazing cattle
2. Predation	Relationship between green Lacewings and spider mites
3. Competition	Introduction of goats in Galapagos islands consisting of tortoise

How many of the above given pairs is/are correctly matched?

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

Ans) c

Exp) Option c is the correct answer.

Pair 1 is correctly matched: Commensalism- One species benefits and the other is unaffected. The egrets always forage close to where the cattle are grazing. Cattle egrets eat the flies and bugs that

tender to bother the cattle. The movement of livestock also dislodges various insects on which cattle egrets feed on. So, **this is called commensalism in which the egrets benefits and this has no effect on Cattle.**

Pair 2 is correctly matched: Predation- One species benefits and the other is harmed. Green lacewings are general predators who feed on a variety of insects. **They are natural enemies to: spider mites, aphids, mealybugs, thrips, whiteflies, scale, and many softer bodied insects.** Green lacewings are generally used for the pest and insect control in agriculture.

Pair 3 is correctly matched: Competition- competition is defined as a process in which the fitness of one species is significantly lower in the presence of another species. **The Abingdon tortoise in Galapagos Islands** became extinct within a decade after goats were introduced on the island, apparently due to the greater browsing efficiency of the goats.

Source: Class-XII Ncert Chapter-13 organisms and populations page-233 to 236

Q.13) Which of the following classical Indian dance forms is also known as ‘mobile sculpture’?

- a) Manipuri
- b) Odissi
- c) Kuchipudi
- d) Kathakali

Ans) b

Exp) Option b is the correct answer.

Odissi is one of the pre-eminent classical dance forms of India which originated in the Hindu temples of the eastern coastal state of Odisha in India. Its theoretical base trace back to ‘Natya Shastra’, the ancient Sanskrit Hindu text on the performing arts.

Option ‘b’ is correct: Odissi is redolent with sculpturesque poses which are reminiscent of the glorious stone sculptures of Konark and other temples from Odisha. These sculptures appear as if they are actually executing the steps of Odissi.

The serenity on the faces of the dancing figures is in keeping with the deeply devotional fervor of the dance. Odissi, if one has to describe its characteristics, is rather uncomplicated. Its beauty, its sculpturesque poses and the lovely tribhangi - the **triple bend in the body** - always remind one of the beauties of Indian art in general.

Odissi dance form is unique in its representation of gracefulness, sensuality and beauty. The dancers create intricate geometrical shapes and patterns with the body. Hence, it is known as ‘mobile sculpture’.

Source: Page 48, Link (<https://egyankosh.ac.in/bitstream/123456789/47396/1/Unit-7.pdf>)

Nitin Singhania CH 6 : Indian Dance forms

Q.14) With reference to the location of major hills in India, consider the following pairs:

Hills	Location
1. Cardamom Hills	Coromandel Coast
2. Kaimur Hills	Konkan Coast
3. Mahadeo Hills	Central India
4. Mikir Hills	North-East India

How many of the above given pairs is/are correctly matched?

- Only one pair
- Only two pairs
- Only three pairs
- All the four pairs

Ans) b

Exp) Option b is the correct answer.

Hills	Region
1) Cardamom Hills	Western Ghats
2) Kaimur Hills	Vindhya Range
3) Mahadeo Hills	Central India
4) Mikir Hills	North-East India

Pair 1 is incorrectly matched: Cardamom Hills is in southeastern Kerala, forming part of the Western Ghats range.

Pair 2 is incorrectly matched: Kaimur Range is the eastern portion of the Vindhya Range, starting near Katangi in the Jabalpur district of Madhya Pradesh and running generally east for a distance to Sasaram in Bihar.

Pair 3 is correctly matched: Mahadeo Hills is located in the northern part of the Satpura Range, in southern Madhya Pradesh, central India.

Pair 4 is correctly matched: Mikir Hills are a group of hills located to the south of the Kaziranga National Park, Assam. The easternmost Meghalaya comprising the detached Mikir Hills is partly isolated being surrounded by three sides. It is part of the Karbi-Plateau.

Source: <https://ncert.nic.in/textbook/pdf/iess102.pdf>

Q.15) Recently seen in news, 'Dirty Bomb' is a-

- type of explosive that utilizes oxygen from the surrounding air to generate an intense explosion.
- weapon that can attack space systems in orbit and attack targets on the earth from space.
- second-generation thermonuclear weapon based on fusion explosion.
- device containing radioactive material as well as conventional explosives.

Ans) d

Exp) Option d is the correct answer.

Recently, Russia has delivered a letter to the United Nations claiming that Ukraine is preparing to detonate a dirty bomb on its territory. The allegations, however, have been denied by Ukraine.

Option d is the correct: A **dirty bomb** also known as a radiological dispersal device is a weapon that **combines conventional explosives like dynamite and radioactive material** such as uranium.

- The primary objective of a dirty bomb is to **create panic, confusion and anxiety** by hurling radioactive dust and smoke into the atmosphere. Hence, it has been long feared as a potential weapon of terrorists.
- A dirty bomb doesn't need to contain highly refined radioactive material, as is used in a nuclear bomb. Instead, it could use radioactive materials from hospitals, nuclear power stations or

research laboratories. This makes them much cheaper and quicker to make than nuclear weapons.

Option a is incorrect: A therobaric bomb is a type of explosive that utilizes oxygen from the surrounding air to generate an intense, high-temperature explosion, and in practice the blast wave typically produced by such a weapon is of a significantly longer duration than that produced by a conventional condensed explosive. The fuel-air bomb is one of the best-known types of therobaric weapons.

Option b is incorrect: Space weapons are weapons used in space warfare. They **include weapons that can attack space systems in orbit** (i.e., anti-satellite weapons), attack targets on the earth from space or disable missiles travelling through space.

Option c is incorrect: A thermonuclear weapon, **fusion weapon or hydrogen bomb** (H bomb) is a second-generation nuclear weapon design. Its greater sophistication affords it vastly greater destructive power than first-generation nuclear bombs, a more compact size, a lower mass, or a combination of these benefits.

Source: <https://blog.forumias.com/russia-tells-china-india-ukraine-planning-dirty-bomb-attack/>

https://www.icanw.org/what_are_dirty_bombs

<https://www.bbc.com/news/world-63373637>

Q.16) With regard to characteristics of Oligotrophic Lake, which of the following statements is/are correct?

1. Low primary productivity
2. Poor water quality.
3. Found in hot and humid areas.
4. High turbidity

Select the correct answer using the code given below:

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

Ans) a

Exp) Option a is the correct answer.

Oligotrophic lakes are those that are unproductive: net primary production is low. nutrients are in poor supply, and secondary production is depressed. Eutrophic lakes, on the other hand, are productive.

Table comparing
Oligotrophic & Eutrophic

Characteristics	Oligotrophic	Eutrophic
Definition	Oligotrophic is a lake that has few nutrients present and also a low primary productivity	Eutrophic is a lake that has abundant nutrients present and also a high primary productivity
Water parameters	Low turbidity, high oxygenation at depth, and clear water	High turbidity, low oxygenation at depth, and water often is brown or with a greenish tint
Primary producers	Low concentrations	High concentrations
Primary productivity	Is less than 100 mg of carbon/m ² a day	Is more than 100 mg of carbon/m ² a day
Consumers	Many fish at deep levels	Few fish at deep levels
Microbes	Reduced biomass	Increased biomass

Option 1 is correct: An oligotrophic lake or water body is one which has a relatively low primary productivity due to the low nutrient content in the lake.

Option 2 is incorrect: The waters of these lakes are usually quite clear due to the limited growth of algae in the lake. The waters of such lakes are of high-drinking quality.

Option 3 is incorrect. Oligotrophic lakes are usually found in the cold regions of the world where mixing of nutrients is rare and slow due to the low temperatures of the lake waters.

Option 4 is incorrect: The waters of these lakes are usually quite clear due to the limited growth of algae in the lake. So, turbidity is low.

Source: <https://www.worldatlas.com/articles/what-are-oligotrophic-mesotrophic-and-eutrophic-lakes.html>

Q.17) Which of the following type(s) of responsibility is enforced by the Constitution on the Council of Ministers?

1. Collective Responsibility
2. Individual Responsibility
3. Legal Responsibility

Select the correct answer using the code given below.

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

Ans) d

Exp) Option d is the correct answer.

Statement 1 is correct: Article 75 states that the Council of Ministers are collectively responsible to the Lok Sabha. When the Lok Sabha passes a no-confidence motion against the Council of Ministers, all the ministers have to resign including those ministers who are from Rajya Sabha.

Statement 2 is correct: Article 75 also contains principle of Individual responsibility. It states that ministers hold office during the pleasure of President. The President can remove the minister only on the advice of Prime Minister. In case of difference of opinion, the Prime Minister can ask President to remove a minister. This provision helps in realisation of collective responsibility.

Statement 3 is incorrect: In Britain, every order of the King is countersigned by a minister, thus making the minister legally responsible for the action. But in India, all orders are issued in the name of the President, hence there is no provision for legal responsibility.

Source: Indian Polity - M Laxmikanth - Fifth Edition, Page - 20.3, 20.4

Q.18) During lightning, a person would be safest:

- a) under a tree
- b) in open area
- c) inside a closed car
- d) along concrete walls

Ans) c

Exp) Option c is the correct answer.

Option c is correct. During a lightning a person is safe in the car. **Cars are safe** from lightning because of the **metal cage** surrounding the people inside the vehicle. This may sound counter-intuitive because metal is a good conductor of electricity, but the **metal cage of a car directs the lightning charge** around the vehicle occupants and safely into the ground. The car essentially becomes a Faraday cage and protects anyone inside.

Options a, b and d are incorrect. During a thunderstorm and lightening it is unsafe to lie on concrete floors or leaning on concrete walls. Lightning can travel through any metal wires or bars in concrete walls or flooring.

During a thunderstorm, **never** shelter under an **isolated tree** and avoid open vehicles such as convertibles, motorcycles, and golf carts. Be sure to **avoid open structures** and stay away from open spaces.

Source: <https://www.nbc12.com/2020/04/06/why-are-you-safe-lightning-car/>

<https://www.cdc.gov/disasters/lightning/safetytips.html>

Q.19) Indigo cultivation in India declined by the beginning of the 20th century because of:

- a) peasant resistance to the oppressive conduct of planters.
- b) its unprofitability in the world market because of new inventions.
- c) national leaders' opposition to the cultivation if indigo.
- d) Government control over the planters.

Ans) b

Exp) Option b is the correct answer.

Indigo (Neel) is a blue dye which comes from the Indigo plant. It was widely grown in India firstly for the East India Company and later for the British Raj. In the nineteenth century, it was one of the most profitable commodities traded in the European market often called “Blue Gold”.

There was a significant increase in the Indigo production in the 18th and 19th century in Bengal and Bihar due to increasing demand and production. Though the revolts of farmers and oppressive zamindari system had some negative impact on indigo farming, **a major reason for its falling cultivation was the invention of Synthetic indigo, which made natural indigo non-profitable for farmers as well as traders.**

Source: <https://blog.forumias.com/indigo-cultivation-in-india-declined-by-the-beginning-of-the-20th-century/>

Q.20) Which of the following are the components of India’s Foreign Exchange Reserves?

1. Special Drawing Rights
2. Investment in US treasury bonds by Reserve Bank of India
3. Silver holdings of the Reserve Bank of India
4. Reserve tranche position with International Monetary Fund

Select the correct answer from the options given below:

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

Ans) a

Exp) Option a is the correct answer.

India's Foreign Exchange Reserves comprise Foreign Currency Assets, Gold, SDR's and Reserve tranche position with International Monetary Fund (IMF).

Option 1 is correct. The Special Drawing Rights (SDR) is a forex reserve asset **created by the IMF** to supplement the official reserves of its member countries.

The SDR is not a currency. It is a potential claim on the freely usable currencies of IMF members. As such, SDRs can provide a country with liquidity.

Option 2 is correct. India's Foreign Exchange Reserves comprise Foreign Currency Assets, Gold, SDR's and Reserve tranche position with International Monetary Fund (IMF). **Foreign currency assets include investments in US Treasury bonds**, Bonds/Treasury Bills of other selected Governments, deposits with foreign central banks, foreign commercial banks etc.

Option 3 is incorrect. Silver holding of the RBI is **not included** in the foreign exchange reserves of India.

Option 4 is correct. A **reserve tranche** is a part of country’s forex reserve. A reserve tranche is a portion of the required quota of currency each member country must provide to the **International Monetary Fund (IMF)** that can be utilized **for its own purposes**—without a service fee or economic reform conditions.

Source: <https://indianexpress.com/article/business/economy/india-rbi-gold-reserves-7607754/#:~:text=Data%20from%20the%20Reserve%20Bank,metal%20held%20in%20September%202020.&text=46%3A09%20am-,Data%20from%20the%20Reserve%20Bank%20shows%20that%20the%20central%20bank,gold%20as%20of%20September%202021.>

<https://www.business-standard.com/about/what-is-forex-reserve>

<https://www.rbi.org.in/scripts/PublicationReportDetails.aspx?ID=383#:~:text=2.10%20From%20the%20country's%20balance,recorded%20in%20the%20capital%20account.>

https://www.investopedia.com/terms/r/reserve_tranche.asp

Directions for the following 2(two) items:

Read the following two passages and answer the item that follows the passages. Your answers to these items should be based on the passages only.

PASSAGE 3 (Q.21)

Disruption—unanticipated step changes in how an industry does business—is one of the main, certainly the most dramatic, forms of industry evolution. What’s less evident, though, is the underlying mechanism responsible for much of this evolution. We tend to ascribe an organization’s failure or success in dealing with disruption to attributes of the organization itself. They’re too slow or too big or, conversely, unusually agile and prepared. When we examine the way industries evolve, time and time again, we find that it’s the relationships among organizations—their networks and interactions—that speed disruption along or stand in its way.

Q.21) Which one of the following statements best reflects the crux of the passage?

- Disruption can lead to dramatic failures of organizations.
- It is challenging for industries to adapt to disruption.
- Organizational interactions are more important than the organizations themselves.
- Organizations must be agile in adapting to disruption to evolve in Industry.

Ans) d

Exp) Option d is the answer.

The above lines clearly outline how organizations respond to the disruption or how they bring it will determine the evolution of the industry. And depending on how agile or slow are they in adapting to the disruption decide whether they fail or succeed.

PASSAGE 4 (Q.22)

Political culture is a distinctive and spotted form of political philosophy that consists of a set of beliefs, values, norms and assumptions concerning the ways on how governmental, political and economic life is being carried out or ought to be carried out. Political culture, thus, creates a framework for political change and is unique to nations, states and other groups. Thus, in essence, this approach examines a social aspect of the subject of political development. It is potentially a powerful, unifying approach to comparative politics. In general, political culture is referred to as a set of shared views and normative judgments held by a population regarding its political system. Therefore, it is often seen as the foundation of all political activity, or at least as a factor determining the nature, characteristics and level of political activity.

Q.22) According to the author of the passage, which among the following can be considered best in explaining the term “Political Culture”?

- A set of shared beliefs and judgements about political system
- Aggregation of individual views about politics in general
- A tool for affecting political activity in a state or a group
- A general political philosophy that explains social life

Ans) a**Exp) Option a is the correct answer.**

The author clearly mentions twice in the passage as to what can be called as 'Political culture'. Following lines reflect the views of the author, "set of beliefs, values, norms and assumptions concerning the ways on how governmental, political and economic life is being carried out or ought to be carried out...In general, political culture is referred to as a set of shared views and normative judgments held by a population regarding its political system."

Q.23) Which of the following is the reason behind the absence of volcanoes in continental-continental convergence?

- a) Asthenosphere is absent beneath Continental-Continental convergence zone.
- b) Absence of geo-synclinal sediments along the continental margin.
- c) Temperature beneath the Convergence zone is not very hot in case of continental- continental convergence.
- d) Generally, no subduction occurs in continental - continental convergence.

Ans) d**Exp) Option d is the correct answer.**

Converging plates can be oceanic, continental, or one of each. If both are continental they will smash together and form a mountain range. If at least one is oceanic, it will subduct. A subducting plate creates volcanoes. Locations with converging in which at least one plate is oceanic at the boundary have volcanoes.

As the density of both the continental plates is same, they **do not subduct** in most of the cases. Even if one subducts, the subduction zone does not go much deeper. So, the two plates collide and give rise to fold mountains under pressure and no volcanoes are formed near continental- continental convergence.

Source: NCERT Class-XI chapter- 4 page-36

Q.24) "The Constitution lays down that certain bills can be introduced in the Parliament only on the recommendation of the President."

In this context, consider the following bills:

1. A bill for the formation of new states
2. A bill which reduces the salaries and allowances of the members of Rajya Sabha.
3. A bill involving the expenditure from the consolidated fund of India
4. A state bill imposing the restriction upon the freedom of trade
5. A bill to protect Personal data of the citizens.
6. A bill which imposes or varies any tax or duty in which states are interested.

Which of the above bills require the previous sanction of the President?

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

Ans) d**Exp) Option d is the correct answer.**

The constitution requires the previous sanction or recommendation of President for introducing legislation on some matters. The courts are debarred from invalidating any legislation on the ground that previous sanction was not obtained where the President has eventually assented to the legislation (Art 255).

Following are the matters which require the previous sanction or recommendation of President:

- 1) **A bill for the formation of new states or the alteration of boundaries, etc. of existing states** (Art 3). The exclusive power of recommending such legislation is given to the president in order to enable him to obtain the views of the affected states before initiating such legislation. **(Hence statement 1 is correct.)**
- 2) A bill providing for any of the matter specified in art (31A)
- 3) **A money bill [Art 117(1)].**
- 4) **A bill which would involve the expenditure from the consolidated fund of India** [Art 117(3)] **(Hence statement 3 is correct.)**
- 5) **A bill affecting taxation in which states are interested or affecting the principle laid down for distributing moneys to the states**, or the varying meaning of the expression of 'Agricultural income' for the purpose of taxation of income or imposing a surcharge for the purpose of the union under the chapter 1 of part XII [Art 274(1)] **(Hence statement 6 is correct.)**
- 6) **State bill imposing the restriction upon the freedom of trade.** [Art 304] **(Hence statement 4 is correct.)**

Option 2 and 5 are examples of ordinary bills. An ordinary bill doesn't require the prior permission of the President to be introduced in the Parliament. A bill to regulate the salaries and allowances of the members of Parliament can be amended by a **simple majority of the two Houses of Parliament** without any recommendation from President of India. **(Hence, Option 2 and 5 are incorrect)**

Source: introduction to the constitution of India by DD Basu. Chapter name- The Union executive. page no-185 and 186

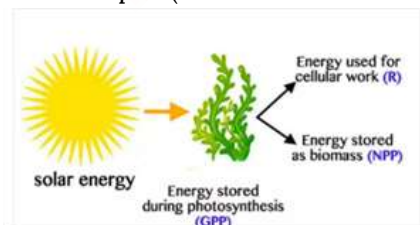
Q.25) Which of the following statements best defines the Net Primary Productivity of an ecosystem?

- a) It is the difference between the energy that is fixed by the autotrophs and their own respiration losses.
- b) Amount of biomass produced per unit area over a time period by plants during photosynthesis.
- c) The rate of biomass production by the autotrophs during photosynthesis.
- d) The rate of formation of new organic matter by consumers.

Ans) a

Exp) Option a is the correct answer.

Net primary productivity is defined as the difference of the energy that's fixed by the autotrophs and their own respiration losses. Gross primary productivity minus respiration losses is the net primary productivity (NPP). Net primary productivity is the available biomass for the consumption to heterotrophs (herbivores and decomposers).



Option b is incorrect. Primary production is defined as the amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis. The rate of biomass production is called productivity.

Option c is incorrect. Gross primary productivity of an ecosystem is the rate of production of organic matter during photosynthesis.

Option d is incorrect. Secondary productivity is defined as the rate of formation of new organic matter by consumers.

Source: NCERT Class 12 Biology – Chapter 14 – P 242, 243.

Q.26) Consider the following statements:

1. It is a theory of judicial interpretation that encourages judges to limit the exercise of their own power.
2. According to this theory, the judges must try to stick to the laws enacted by the legislature.
3. This theory provides that judges should hesitate to strike down laws unless they are obviously unconstitutional.

The above statements refer to which of the following theories?

- a) Judicial Activism
- b) Judicial Overreach
- c) Judicial Restraint
- d) Judicial Review

Ans) c

Exp) Option c is the correct answer.

Judicial activism and judicial restraint are facets of that uncourageous creativity and pragmatic wisdom. Judicial Restraint is a theory of judicial interpretation that encourages judges to **limit the exercise of their own power**. Judicial restraint limits the power of a judge to interpret law in a broad manner or strike down a legislation. In judicial activism, the judge takes more freedom to deviate from conventional interpretation, so that a law can be applied to a given set of facts. He can overrule laws as well as judgments. According to the philosophy of judicial restraint, there is no scope of interpretation of the Constitution, and changes can be made through amendments only. In case of judicial activism, Constitution can be interpreted in a broad manner. According to the theory of judicial restraint, the judge **must stick to the laws enacted by the legislature and should uphold them unless they are unconstitutional**. In judicial activism, the judge can interpret laws according to the changing needs of the society and prevent injustice.

When the judiciary appears to have transgressed its jurisdiction, triggering a grave **violation of the doctrine of separation of powers, the term “judicial overreach”** is widely used. It is also commonly known as judicial adventurism.

Source: Laxmikanth 6th edition chapter-28 page-28.2

<http://www.legalservicesindia.com/article/2019/Judicial-Activism-and-Judicial-Restraint.html#:~:text=Judicial%20Restraint%20is%20a%20theory%20of%20judicial%20interpretation,strike%20down%20laws%20unless%20they%20are%20obviously%20unconstitutional.>

Q.27) Which of the following statements correctly defines the term ‘Credit Spread’?

- a) It is the difference between the returns from two different debt instruments having the same maturity but different credit rating.

- b) It is the difference between the interest rate that a bank charges on a borrower and the interest rate a bank pays to a depositor.
- c) It is the difference between amount of credit availed by people in rural areas from a formal source and that from an informal source.
- d) It is the difference between the repo rate and average interest rate charged by commercial banks.

Ans) a

Exp) Option a is the correct answer.

Option a is correct. **Credit spread** is the **difference between the yield (return)** of two different debt instruments with the same maturity but different credit ratings. In other words, the spread is the difference in returns due to different credit qualities. It is used to reflect the additional yield required by an investor for taking on additional credit risk. For example, if a 5-year Treasury note is trading at a yield of 3% and a 5-year corporate bond is trading at a yield of 5%, the credit spread is 2% (5% - 3%).

Source: <https://corporatefinanceinstitute.com/resources/commercial-lending/credit-spread/>

<https://www.bankrate.com/glossary/b/bank-spread/>

<https://www.investopedia.com/ask/answers/052115/what-difference-between-optionadjusted-spread-and-zspread-reference-mortgagebacked-securities-mbs.asp>

<https://www.lexisnexis.co.uk/legal/glossary/option-adjusted-spread>

Q.28) With reference to the Single-Celled Proteins (SCP), consider the following statements:

1. They can be used as the protein supplement in animal feeds.
2. Production of SCP can help in reducing the environmental pollution.
3. Blue green algae known as Spirulina can be used for production of SCP.

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

Ans) d

Exp) Option d is the correct answer.

Single cell protein (SCP) refers to dead, dry cells of microorganisms, such as yeast, fungi, bacteria and algae.

Statement 1 is correct. Single-cell proteins are the dried cells of microorganism, which are used as the protein supplement in human foods or animal feeds. Microorganisms like algae, fungi, yeast and bacteria, utilize inexpensive feedstock and wastes are used as sources of carbon and energy for growth to produce biomass, protein concentrate or amino acids.

Statement 2 is correct. Single Celled Protein (SCP) can be produced from wastes, thus lead to **reduction in environmental pollution**. In this, the agricultural and some industrial wastes which may contribute to a significant level of pollution in watercourses are used for SCP production. Thus, the utilization of such materials in SCP processes serves two functions as **reduction in pollution** and **creation of edible protein**.

Statement 3 is correct. Microbes being used as a source of good protein for production of protein at industrial scale. For example, **Spirulina** which is a **Blue-green algae** is grown on materials like

waste water from potato processing plants (containing starch), straw, molasses, animal manure and even sewage, to produce large quantities of Single Celled Proteins (SCP).

Source: <https://scialert.net/fulltext/?doi=ajft.2011.103.116>

NCERT science Biology class 12 chapter 9, Chapter 176

Q.29) A number consist of three digits of which middle digit is 0 and their sum is 12. If the number formed by interchanging the first and last digit is greater than number itself by 198, then the difference between last and first digit is

- a) 2
- b) 3
- c) 5
- d) 8

Ans) a

Exp) Option a is the correct answer.

Let the first digit and last digit of number be 'x' and 'y' respectively. Then,

$$x + y = 12 \quad \dots (1)$$

$$100y + x - 100x - y = 198$$

$$= 99y - 99x = 198$$

$$= y - x = 2 \quad \dots (2)$$

From eq. (1) and eq. (2), we have

$x = 5$ and $y = 7$ then the number is 507

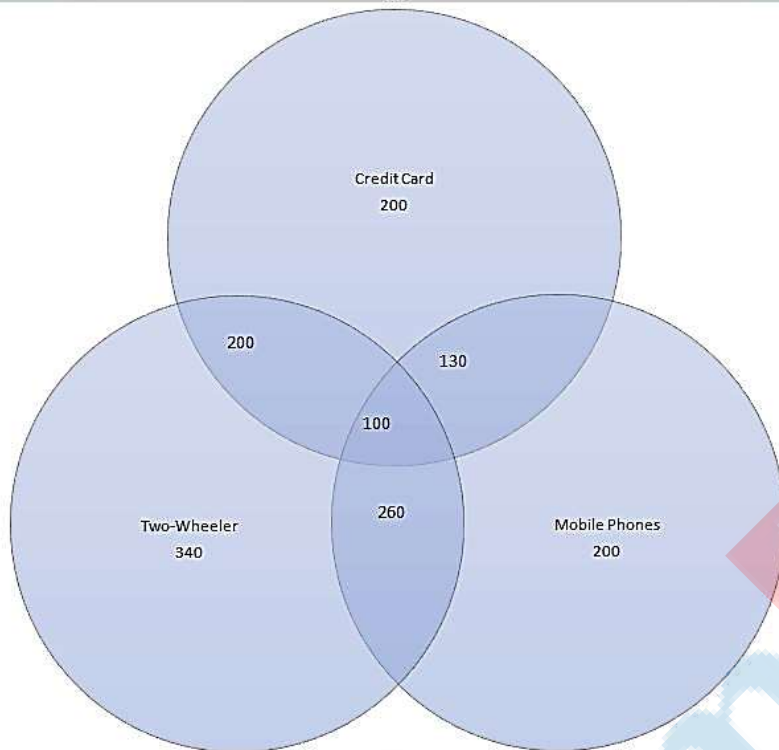
So, difference between the last and the first digit is $(7 - 5 = 2)$.

Q.30) Of the 1500 candidates who were interviewed for a position at a call center, 900 had a two-wheeler, 630 had a credit card and 690 had a mobile phone. 300 of them had both, a two-wheeler and a credit card, 230 had both, a credit card and a mobile phone and 360 had both, a two-wheeler and mobile phone and 100 had all three. How many candidates had none of the three?

- a) 100
- b) 170
- c) 70
- d) 230

Ans) c

Exp) Option c is the correct answer.



Number of candidate who has at least one of these = $(340+260+100+200+200+130+200) = 1430$

The number of candidates having neither = $(1500 - 1430) = 70$

Q.31) With reference to the Mansabdari system, consider the following statements:

1. The revenues assigned to zamindars in their homelands are hereditary and non-transferable.
2. The numerical values assigned to determine the rank of mansabdars are called zats.
3. Mansabdars with rank of one thousand or below were called amirs.

Which of the above statements are correct?

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

Ans) d

Exp) Option d is the correct answer.

The word mansab means a place or position and therefore it means a rank in the mansab system under the Mughals. During Babur's time, the term mansabdar was not used; instead, another term wajhdar was employed. Akbar gave mansabs to both military and civil officers on the basis of their merit or service to the state.

Statement 1 is correct. Mansabdars received their salaries as revenue assignments called jagirs. The jagirs which were assigned to **zamindars (chieftains) in their homelands**, were called **watan jagirs** which were **hereditary and non-transferable**.

Statement 2 is correct. The mansab was a grading system used by the Mughals to fix (1) rank, (2) salary and (3) military responsibilities. Rank and salary were determined by a numerical value called

zat. The higher the zat, the more prestigious was the noble's position in court and the larger his salary.

Statement 3 is correct. The mansabdars whose rank was **one thousand or below** were called Amir, while those above 1,000 were called Amir-al Kabir (Great Amir).

Source: <https://egyankosh.ac.in/bitstream/123456789/20234/1/Unit-15.pdf>
<https://ncert.nic.in/textbook/pdf/gess104.pdf>

Q.32) Recently, the Reserve Bank of India (RBI) had allowed international trade settlements between India and other countries in Rupees. Which of the following is the most likely impact of this measure?

- Appreciation of Indian rupee against foreign currencies.
- Reduction in demand for Indian rupee in the global financial market.
- It necessarily leads to the decline of India's foreign currency reserves.
- Indian goods will become more competitive in global markets.

Ans) a

Exp) Option a is the correct answer.

Recently, the **RBI had issued a circular allowing international trade settlement in Rupees**. It came in the backdrop of continuous fall in the value of Indian Rupee against the US Dollar. It is expected that the decision to allow Indian traders to settle imports and exports in rupees will **ease the demand for US Dollar and help control the falling exchange rate**.

Option a is correct: The trade settlement in Indian rupees will likely **result in the increasing demand for Indian rupee in the global exchange rate market** as countries will start converting foreign currency into rupee to engage in trade transactions with India. This will likely result in appreciation of Indian rupee.

Option b is incorrect: With this measure, the value of Indian rupee against foreign currencies such as US Dollar, Euro etc., will increase, thus **appreciation of Indian rupee**. As the **demand for the Indian rupee is rising, its value will start rising**.

Option c is incorrect: This measure will **not necessarily reduce the foreign currency reserve of the country**. The measure will reduce India's dependency on dollars and other Hard currencies, which is likely to reduce the depletion of forex reserves of India.

Option d is incorrect: This measure will likely lead to **appreciation of Indian rupee**. With the **increase in value of Indian rupee against foreign currency**, Indian goods will lose their trade competitiveness because **foreign countries have to pay more to buy Indian goods**.

Source: <https://indianexpress.com/article/explained/explained-rbi-international-trade-settlements-rupees-8025178/>

Q.33) According to Article 12 of Indian Constitution, which of the following are included in the definition of 'state'?

- Gram Panchayat
- Life Insurance Corporation
- State Legislature
- Political Parties
- Judicial proceedings of the Supreme Court

Select the correct answer using the codes given below:

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

Ans) a

Exp) Option a is the correct answer.

Article 12 of Indian Constitution is a gateway provision for Part III on Fundamental Rights, and defined the term 'State' used throughout the Part. Under Indian constitution, the term 'State' has been used in different provisions concerning the fundamental rights. It is defined in a wider sense so as to include all its agencies. It is the actions of these agencies that can be challenged in the courts as violating the Fundamental Rights.

Option 1, 2 and 3 are correct: Article 12 has defined the term for the purposes of Part III. According to it, the State includes the following:

- (a) Government and Parliament of India, that is, executive and legislative organs of the Union government.
- (b) Government and **legislature of states**, that is, executive and legislative organs of state government. **(Hence Statement 3 is correct)**
- (c) **All local authorities**, that is, municipalities, district boards, improvement trusts, **gram panchayats** etc. **(Hence Statement 1 is correct)**
- (d) All other authorities, that is, **statutory or non-statutory authorities like LIC, ONGC, SAIL, etc.** **(Hence Statement 2 is correct)**

Option 4 and 5 are incorrect: Political Parties as such do not come under the definition of 'state' under article 12. The High Court of Madras has said that "A political party is only a group of individuals who may contest the election and thereafter, who may even govern the State. Even during, when the political parties are in power, the political party as such does not come under the definition the 'State' within the meaning of Article 12 of the Constitution of India."

In Rupa Ashok Hurra v Ashok Hurra, the Supreme Court reaffirmed and ruled that **no judicial proceeding could be said to violate any fundamental right**. It was said to be a settled position of law that superior courts of justice do not fall within the ambit of 'State' or other authorities under Article 12. Therefore, it can rightly be said that when they give judicial decisions, they do not come within the meaning of State. But, while courts perform their administrative function, they are within the State's definition.

Source: 'State' under Article 12 of the Constitution of India (ipleaders.in)

M Laxmikant- Ch-7 (Fundamental rights)

Q.34) Sodium and Potassium are not kept in open air but immersed in kerosene oil. Which of the following could be the possible reason for this?

- a) They react vigorously in open air due to high reactivity.
- b) They may lose their shine when kept open.
- c) They will turn into poisonous substances.
- d) They get rusted when kept in open for long time.

Ans) a

Exp) Option a is the correct answer.

Alkali metals are the chemical elements found in Group 1 of the periodic table. The alkali metals include: lithium, sodium, potassium, rubidium, caesium, and francium.

Option a is correct. Potassium and Sodium are highly reactive metals. If kept in open air, they react with oxygen and catches fire. The reaction is very vigorous. Both of these metals are in Group 1 on the periodic table. Both of these do not react with Kerosene. Therefore, they are kept in kerosene.

Option b is incorrect. Sodium and Potassium are so soft that they can be cut with a knife. They have low densities and low melting points. However, they don't shine normally. So, there is no question of losing shine.

Option c is incorrect. They rapidly react with the oxygen in the air and catches fire, they will not turn into poisonous substances, hence it is one of the reasons for immersing them in the kerosene oil.

Option d is incorrect. Sodium and Potassium cannot be kept in open air or even in presence of water vapor. **So, the question of rusting will not appear. Also, rusting is a phenomenon generally associated with long time, and it is unlikely for that to be the reason for storage in kerosene.**

Source: NCERT Class 8th Science

Q.35) With reference to the drainage patterns of Indian rivers, consider the following statements:

1. Dendritic pattern of drainage can be observed among the rivers of northern plains of India.
2. 'Radial' pattern of drainage is found among the rivers originating from the Amarkantak range.
3. Peninsular Rivers in India are devoid of trellis and radial patterns of drainage.

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

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

Ans) a

Exp) Option a is the correct answer.

Drainage patterns are created by stream erosion over time that reveals characteristics of the kind of rocks and geologic structures in a landscape region drained by streams. Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin. They are governed by the **topography of the land**, whether a particular region is dominated by **hard or soft rocks**, and the **gradient of the land**. Thus, Peninsular rivers form different drainage pattern than Himalayan rivers.

Statement 1 is correct:

Dendritic patterns, which are by far the most common, develop in areas where the rock (or unconsolidated material) beneath the stream has no particular fabric or structure and can be eroded equally easily in all directions. Examples: The **rivers of the northern plains; Indus, Ganga and Brahmaputra**.

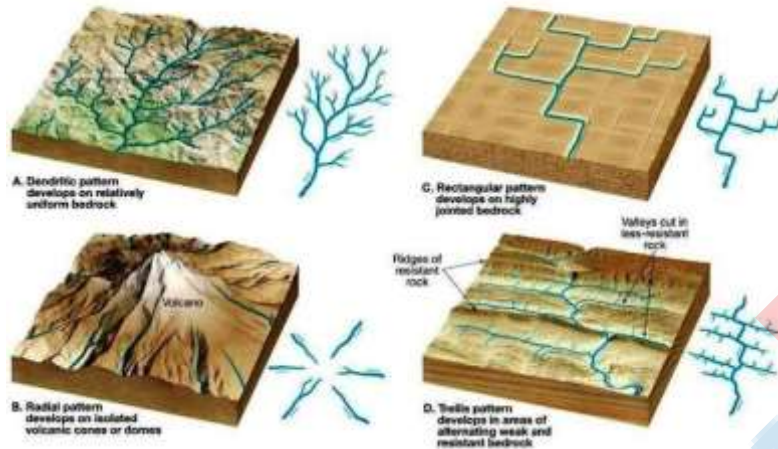
Statement 2 is correct:

In **Radial Drainage Pattern** the tributaries from a summit follow the slope downwards and drain down in all directions. For example: **Narmada, Son and Mahanadi originate from Amarkantak Hills** and flow in different directions.

Statement 3 is incorrect:

Peninsular Rivers in India have the drainage pattern of Super imposed, rejuvenated drainage resulting in **trellis, radial and rectangular patterns**. They have Smaller, fixed course with well-adjusted valleys.

Drainage patterns



Source: Class 11th NCERT Geography Chapter -3 (India – Physical Environment)

Q.36) With regard to freedom struggle of princely states, which of the following statements is/are correct?

1. Responsible government in the princely states were demanded in the 1920 Nagpur session of Indian national congress (INC).
2. The formation of congress ministries in 8 provinces in 1937 encouraged the formation of Praja mandals in many princely states.
3. In the Lahore session of 1929, INC declared its objective was to achieve complete independence for whole India including the princely states.

Select the correct answer using the code given below:

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

Ans) a

Exp) Option a is the correct answer.

Numerous local organizations of the States' people came into existence after Non-Cooperation and Khilafat Movement. Some of the States in which praja mandals or States' People's Conferences were organized were Mysore, Hyderabad, Baroda, the Kathiawad States, the Deccan States, Jamnagar, Indore, and Nawanagar. This process came to a head in December 1927 with the convening of the All-India States' People's Conference (AISPC).

Statement 1 is correct: The policy of the Indian National Congress towards the Indian states had been first enunciated in 1920 at Nagpur. Here a resolution calling upon the princes to **grant full responsible government in their States had been passed**. This session also permitted residents of the States to become members of the Congress. But they **could not initiate political activity in the**

States in the name of Congress but only in their individual capacity or as members of the local political organizations.

Statement 2 is correct: The formation of congress ministries in **8 provinces (U.P., C.P., Madras, Bombay, Bihar, Orissa, Assam and N.W.F.P)** in 1937 created a new sense of confidence and expectation in the people of the Indian States and acted as a spur to greater political activity. The years 1938-39 witnessed a large number of movements demanding responsible government and other reforms. **Praja mandals** mushroomed in many States that had earlier no such organizations. Major struggles broke out in Jaipur, Kashmir, Rajkot, Patiala, Hyderabad, Mysore, Travancore, and the Orissa States.

Statement 3 is incorrect: Lahore session was significant because Indian National Congress adopted the Poorna Swaraj or complete independence resolution in Lahore. But it did not talk about complete independence of the princely states.

Source: India struggle for Independence Bipin Chandra Chapter-28 page-356 to 358

Q.37) With reference to different Economic Principles, consider the following pairs:

Economic Principles	Outcome
1. Law of Diminishing Marginal Utility	With consumption of additional item, the amount of satisfaction produced is increased
2. Law of Diminishing Marginal Rate of Substitution	Consumer can never substitute one commodity for another without changing the level of satisfaction.
3. Law of Diminishing Marginal productivity	Increase in the quantity of one production variable will always increase the output

How many pairs given above is/are correctly matched?

- Only one pair
- Only two pairs
- Only three pairs
- None

Ans) d

Exp) Option d is the correct answer.

Pair 1 is incorrectly matched: The law of diminishing marginal utility holds that as we consume more of an item, the amount of satisfaction produced by each additional unit of that good

declines. The change in utility gained from utilizing an additional unit of a product is known as marginal utility.

Pair 2 is incorrectly matched: Marginal Rate of Substitution is the rate at which consumer can substitute one commodity for another without changing the level of satisfaction. Marginal substitution is diminishing, meaning a **consumer chooses the substitute in place of another good, rather than simultaneously consuming more.** This law states that as a consumer gets more and more unit of a commodity, he will be willing to give up less and fewer units of another commodity so that the level of satisfaction of the consumer remains the same.

Pair 3 is incorrectly matched: The **Law of Diminishing Marginal Product** is an economics concept. It says that, at early stages of production, if we increase 1 production variable and the rest of the things remain the same, the product total production may increase. If, however, we continue to increase the input of that production variable, it will produce lesser returns (on average) per production variable. In simple words, an **increase in the quantity of 1 production variable will increase the output up to a certain point. After that point, it will give less gain for each unit added. The return on investment goes down.**

Source: <https://economictimes.indiatimes.com/defaultinterstitial.cms>

https://www.investopedia.com/terms/m/marginal_rate_substitution.asp#:~:text=Usually%2C%20marginal%20substitution%20is%20diminishing,which%20is%20the%20indifference%20curve.

https://thebusinessprofessor.com/en_US/economic-analysis-monetary-policy/diminishing-marginal-productivity-definition

Ncert 12th Chapter 3 Production and Cost

Q.38) NASA has recently completed the technology demonstration of LOFTID mission. what is the intended objective behind this mission?

- It is a space based medical experiment to undertake surgery in zero gravity.
- It helped in the display of “aeroshell” technology which would help humans to land on Mars.
- It will help the humans to develop artificial habitable environment at the moon’s surface.
- It will help in altering the trajectory of an asteroid by sending a spacecraft to crash into it.

Ans) b

Exp) Option b is the correct answer.

NASA completed the technology demonstration of its Low-Earth Orbit Flight Test of an Inflatable Decelerator (LOFTID) mission. The “inflatable aerodynamic decelerator,” or “aeroshell” technology that will help land humans on Mars.

Option a is incorrect: The University of Louisville’s Surgical Fluid Management System (SFMS) were tested in microgravity. It was a NASA supported space surgery system which was tested in microgravity on a Zero Gravity Corp. It will help in providing critical data to advance space-based medical innovations.

Option b is correct: LOFTID is an inflatable aerodynamic decelerator,” or “aeroshell” technology which will help land future astronauts on Mars. It is the first such test of an inflatable decelerator from Earth-orbital speed. LOFTID acts as a giant brake by deploying a large inflatable aeroshell (a deployable structure protected by a flexible heatshield) before entering the atmosphere.

Option c is incorrect: LOFTID mission is not related to develop artificial habitable environment at the moon’s surface.

Option d is incorrect: NASA's DART (Double Asteroid Redirection Test) was aimed at asteroid Dimorphos which was orbiting a larger asteroid Didymos. NASA scientists for the first time have succeeded in altering the path of the asteroid by hitting the spacecraft into it.

Knowledge

Base:



Source: <https://indianexpress.com/article/technology/science/nasa-loftid-hiad-mission-inflatable-heat-shield-8261342/>

Q.39) Regarding the coins issued by Delhi Sultanate, which of the statements are correct?

1. The king's name and title were inscribed on the coins.
2. Alauddin Khilji introduced the inscription of self-praising title on the coins.
3. The coins had the image of issuing monarch on one side.
4. The name of the mint was inscribed in the coins for the first time by Delhi Sultanate rulers.

Select the correct answer from the code given below:

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

Ans) d

Exp) Option d is the correct answer.

Delhi Sultanate existed from **1206 to 1526 AD** beginning with the Slave dynasty and then followed by the Khilji, Tughlaq, Sayyids and Lodi dynasty. The Sultans of Delhi issued gold, silver, copper and

billon coins. They established a **sound currency system** based on the **silver tanka and the copper dirham** which led to the growth of trade.

Statement 3 is incorrect. The coins **did not bear any image of the issuing monarch** as there was a **prohibition of idolatry in Islam.**

Options 1, 2 and 4 are correct:

- 1) The coins had inscriptions in the form of **king's name, title and the date as per Hijri calendar.**
- 2) **For the first time, the name of the mint was also inscribed** in the coins.
- 3) Tanka and Copper Jital were introduced by Iltutmish.
- 4) **Alauddin Khilji** changed the existing design by dropping the name of the Khalif and **replaced it by self-praising titles.**
- 5) Muhammad bin Tughlaq circulated bronze and copper coins as token currency which was a flop.

Source: Indian Art & Culture, Nitin Singhania, 3rd Edition, Chapter-24

Q.40) Several jute mills in West Bengal have been experiencing closure and suspension of their operations in the recent past. Which among the following is the most appropriate reason behind this?

- a) Ban on the export of Jute products from India
- b) Increase in temperature and heat waves due to global warming
- c) Labour strikes and lock-outs
- d) High Procurement prices of raw jute

Ans) d

Exp) Option d is the correct answer.

Option d is correct: Several jute mills in West Bengal have announced temporary suspension of their operations in the last few years. This is because **mills are procuring raw jute at prices higher than what they are selling them at after processing.** Mills do not acquire their raw material directly from the farmers. There are two reasons for the same:

- 1) First, because the **farmers are far-off from the mills locations** and the procurement process is cumbersome. Mills would have to go to multiple farmers to acquire the requisite quantity as no single farmer produces enough to fulfil the requirements of the entire mill. The procurement now flows through middlemen or traders. As a standard practice, the middlemen charge mills for their services, which involves procuring jute from farmers, grading, bailing and then bringing the bales to the mills.
- 2) The government has a **fixed Minimum Support Price (MSP) for raw jute procurement** from farmers which is **₹4,750 per quintal** for the 2022-23 season. However, **jute reaches mill at ₹7,200 per quintal that is, ₹700 more than the ₹6,500 per quintal cap** for the final product. This is why the procuring price is higher than the selling price.

The situation was made particularly worrisome by the **occurrence of Cyclone Amphan** in May 2020 and the subsequent rains in major jute producing States. These events led to lower acreage, which in turn led to lower production and yield compared to previous years.

Source: [https://www.thehindu.com/specials/text-and-context/the-recent-woes-of-the-jute-industry-in-west-](https://www.thehindu.com/specials/text-and-context/the-recent-woes-of-the-jute-industry-in-west-bengal/article65373299.ece#:~:text=What%20made%20the%20situation%20particularly,yield%20compared%20to%20previous%20years.)

[bengal/article65373299.ece#:~:text=What%20made%20the%20situation%20particularly,yield%20compared%20to%20previous%20years.](https://www.thehindu.com/specials/text-and-context/the-recent-woes-of-the-jute-industry-in-west-bengal/article65373299.ece#:~:text=What%20made%20the%20situation%20particularly,yield%20compared%20to%20previous%20years.)

Q.41) In how many ways can you rearrange the word TROUBLE such that the rearranged word starts with a vowel?

- a) 1080
- b) 2160
- c) 4320
- d) 60

Ans) b

Exp) Option b is the correct answer.

TROUBLE is a seven-lettered word. Since the rearranged word has to start with a vowel, the first letter can be O, U or E. The balance 6 letters can be arranged in 6P_6 or $6!$ ways. Total number of words = $3 \times 6! = 2160$

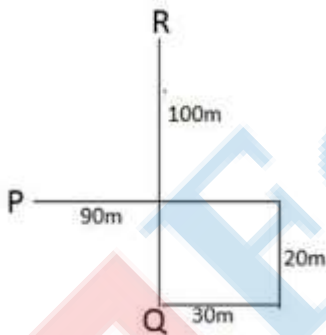
Q.42) A man starts walking from point P. He goes 90 metres in the East before turning to his right. He goes 20 metres before turning to his right again and walk 30 metres and reaches point Q. From point Q, he goes 100 metres to the North and reaches point R. What is shortest distance between P and R?

- a) 80 metres
- b) 100 metres
- c) 140 metres
- d) 260 metres

Ans) b

Exp) Option b is the correct answer.

$$PR = \sqrt{80^2 + 60^2} = \sqrt{6400 + 3600} = 100$$



Q.43) In the context of Indian Polity, which of the following statements is/are correct with respect to the 'Delegated Legislations/Acts'?

1. The Executive organ of the Government is not authorised to make changes to a Delegated Legislation.
2. Unlike legislations enacted by the Parliament, delegated legislations cannot be subjected to judicial review.
3. The word 'delegated legislation' is mentioned in the Constitution of India.
4. The Parliamentary Committee on Petitions is exclusively responsible for monitoring the matters related to delegated legislation.

Select the correct answer using the code given below:

- a) 1 only
- b) 2 and 3 only
- c) 2 and 4 only
- d) None of the above

Ans) d

Exp) Option d is the correct answer.

Most of the modern socio-economic legislations passed by the **legislature lay down the guiding principles and the legislative policy**. The legislatures because of lack of time leaves **matters of details to the executives**, this process is known as delegated legislation.

Statement 1 is incorrect: The Parliament makes laws in a skeleton form and authorises the Executive to make detailed rules and regulations within the framework of the parent law. This is known as delegated legislation or executive legislation or subordinate legislation. Such rules and regulations are placed before the Parliament for its examination.

Statement 2 is incorrect: Both delegated legislation and parliamentary legislation are subject to judicial review. For instance, **recently the Supreme Court** ruled that if a **rule goes beyond the rule-making power conferred by the statute**, the same has to be declared **invalid**. If a rule **supplants any provisions** for which power has not been conferred, it becomes **invalid**.

Statement 3 is incorrect: The word delegated legislation had been **mentioned nowhere in the constitution of India**. **The concept of delegated legislation was not mentioned specifically in the Indian Constitution, but it can be understood by interpreting Article 312.**

Statement 4 is incorrect: The Parliamentary Committee on Subordinate Legislation examines and reports to the House whether the powers to make regulations, rules, sub-rules and bye-laws delegated by the Parliament to the Executive are being properly exercised by it. Its role is to ensure that delegated legislation does not transgress into areas not prescribed for it and that it does not intrude into the sphere which is the sole concern of the legislature.

Source: <https://www.thehindu.com/news/national/rules-made-by-centre-state-cannot-exceed-powers-granted-by-parent-statute-sc/article66313557.ece>

<https://blog.forumias.com/subordinate-legislation/#:~:text=Subordinate%20legislation%20is%20the%20legislation,Necessity%20for%20subordinate%20legislation>

Indian Polity -Lakshmikanth (Parliamentary committees)

Q.44) "The crop is subtropical in nature. A hard frost is injurious to it. It requires at least 210 frost - free days and 50 to 100 centimeters of rainfall for its growth. A light well-drained soil capable of retaining moisture is ideally suited for the cultivation of the crop."

Which one of the following is that crop?

- a) Cotton
- b) Jute
- c) Sugarcane
- d) Tea

Ans) a

Exp) Option a is the correct answer.

Cotton is the crop of tropical and sub-tropical areas and requires uniformly high temperature varying between 21°C and 30°C. The growth of cotton is retarded when the temperature falls below 20°C. Frost is detrimental for the cotton plant and **it is grown in areas having at least 210 frost free days in a year**. Well drained Black soil is ideal for growing cotton.

The modest requirement of water can be met by **an average annual rainfall of 50- 100 cm**. However, it is successfully grown in areas of lesser rainfall with the help of irrigation.

Source: <https://ncert.nic.in/ncerts/l/fesc103.pdf>

Q.45) With reference to colonial India, which of the following were the major causes of the early (pre 20th century) peasant movements?

1. Laws brought by colonial government enabling commodification of land.
2. Lack of government support for agricultural improvement.
3. Introduction of an alien system of courts and laws.
4. Desire to end zamindari system.
5. Rigid land tenures with extremely high rents.

Select the correct option using the code given below:

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

Ans) c

Exp) Option c is the correct answer.

Peasant's movements of 19th century were aimed to solve the particular grievances of peasants and had limited objectives.

Option 1 is correct: Land in Indian villages used to have **community ownership**, and those that were **privately owned were never mortgaged or sold**. However **new capitalistic land tenures and revenue systems introduced by the British** such as the **Permanent Settlement** and **Ryotwari Settlement** made **land alienable** by the **government, or the landlord or the moneylender** (when mortgaged to pay high revenues). **Many peasants** thus **lost their precious lands** to which they were **attached emotionally** as well, became **tenants-at-will (economically vulnerable)** for which they resented the British and their Indian agents like the zamindars and the moneylenders. This led to a number of peasant movements.

Option 2 is incorrect: In the 19th and 20th centuries there was **no concept of holding governments**, especially a colonial one, **accountable** for the **welfare of peasants** and **progress of agriculture**. So, the peasants didn't expect government support for agricultural improvement nor did their movements demanded government support for agricultural improvement.

Option 3 is correct: The British introduced a **new system of civil and criminal laws** and a **new system of courts** to adjudicate cases. All these were **too complex for the peasants to understand** and made them feel **powerless against local magnates** like the **zamindars** and the **moneylenders** who were **literate, understood the laws**, as well unlike them had the **money to fight long drawn legal battles** or **bribe** local functionaries like the thanedar, etc. Feeling **disempowered** to get **justice** against the zamindars and moneylenders for **illegal evictions and uneconomic rents and levies** also made the peasants angry.

Option 4 is incorrect: The Peasant movements of the early phase were **not very forward looking** and **did not** think about **dismantling unjust feudal agrarian systems** like the zamindari system. They just **wanted to go back to the old pre-British system**, where the zamindar was not an extortionist, rather a paternal figure who would ask for **economic rents and accommodate them in difficult times**. It was much later in the 1930s and 40s that the peasant movements began envisioning a fairer system without feudal elements like zamindari.

Option 5 is correct: Before the arrival of the British, the revenue rates used to be around 1/6th of the produce, and revenues used to be reduced or cancelled in years of calamities like drought. However, the British introduced new systems of **land revenues which were extremely rigid** (no exception for calamities) and extremely high rents which **impoverished** the peasantry, thus angering them.

Source: History of Modern India by Spectrum, Ch-31

Q.46) For which of the following reasons, the Constitution of India provided for a single citizenship?

- To provide continuity to the federal provisions, which existed during British Colonial period.
- To avoid confusion between different rights enjoyed under State and Central units.
- To save the financial resources required for separate Constitutions.
- To provide citizens with the same political and civil rights all over the country.

Ans) d

Exp) Option d is the correct answer.

The Constitution of India has adopted the system of single citizenship. There is only Indian Citizenship and no separate state citizenship. All citizens irrespective of the state in which they are born or reside enjoy the same rights all over the country. The other federal states like US, Switzerland and Australia have dual citizenship, that is, national citizenship as well as state citizenship.

Option a is incorrect: The reason for providing single citizenship was not to provide continuity to federal provisions.

Option b is incorrect: Dual citizenship does not create confusion but the problem of discrimination. In USA, each person is not only a citizen of USA but also of the particular state to which he belongs. Thus, he owes allegiance to both and enjoys dual sets of rights—one set conferred by the national government and another by the state government. This system creates the **problem of discrimination**, that is, a state may discriminate in favour of its citizens in matters like right to vote, right to hold public offices, right to practice professions and so on. This problem is **avoided in the system of single citizenship prevalent in India**.

Option c is incorrect: The issue of financial resources required for separate Constitutions was not of much significance. This is because financial resource is considered after agreeing on a particular philosophical framework. Here the single citizenship was opted.

Option d is correct: In India, the Constitution of India has introduced the **system of single citizenship** and provided uniform rights for the people of India to promote the feeling of fraternity and unity among them and to build an integrated Indian nation. All citizens irrespective of the state in which they are born or reside enjoy the **same political and civil rights of citizenship all over the country and no discrimination is made between them**.

Source: Indian Polity by Laxmikant – 6th Edition – Chapter 6 – Citizenship.

Q.47) With reference to various disputed island across the world, consider the following pairs:

Islands	Disputed region between
1. Kuril Island	Japan and Russia
2. Islas Malvinas	France and Argentina
3. Spratly Island	South Korea and Vietnam
4. Senkaku Island	China and North Korea

How many pair/s given above is/are correctly matched?

- only one pair
- only two pairs
- only three pairs
- All the four pairs

Ans) a

Exp) Option a is the correct answer.

Pair 1 is correct: Kuril Island is subject to dispute between Russia and Japan. While Russia claims this region as theirs which they mention as South Kuril Islands, Japan calls it their region and named it as Northern territories. **Currently the region is controlled by Russia** and Japan claims such region is illegally occupied by Russia.,



Pair 2 is incorrect: The claims over Islas Malvinas also known as Falkland Island have been laid by the United Kingdom and Argentina. It is located in the south Atlantic Ocean.



Pair 3 is incorrect: Spratly islands are a disputed island in the South China Sea. It lies off the coasts of the **Philippines, Malaysia, and Vietnam**. Presently most of the islands' region is controlled

by **China** and other countries in the region including **Vietnam** dispute **China's claim over this region**. South Korea is not included in this dispute.



Pair 4 is incorrect: Senkaku islands is a region of dispute between China and Japan (not North Korea). The Senkaku Islands are a group of uninhabited islands in the East China Sea, currently administered by Japan. However recently **China is trying to extend its influence over this region in conflict with Japan.**

Source: <https://www.thehindu.com/news/national/tamil-nadu/india-and-japan-should-devise-strategy-for-the-indo-pacific-says-mk-narayanan/article65392044.ece#:~:text=Senkaku%20Islands%20in%20the%20East%20China%20Sea>

<https://www.thehindu.com/news/international/china-militarised-at-least-three-islands-in-the-disputed-south-china-sea-us-indo-pacific-commander/article65245262.ece>

<https://www.thehindu.com/news/international/china-says-it-drove-away-us-destroyer-that-sailed-near-disputed-isles/article65637029.ece>

<https://www.thehindu.com/news/national/argentina-to-revive-falklands-issue-in-india/article65348964.ece>

Q.48) Tamasha paintings belonged to which of the following schools of paintings?

- Kangra School
- Kishangarh School
- Mewar School
- Jaipur School

Ans) c

Exp) Option c is the correct answer.

The early Mewar painting was dominated by the extraordinary painter of 17th century, Sahibdin, who focussed on the Ragamala, the Ramayana and the Bhagavata Purana. Later, most of the paintings depicted the life at court in Mewar.

Option c is correct: The 'tamasha' paintings belonged to the **Mewar School of painting**. The paintings show **court ceremonial and city views** in unprecedented detail.

Source: Indian Culture, Nitin Singhania, 3rd Edition, Chapter-2, Indian Paintings

Q.49) Recent studies have shown that wind speeds in major Indian cities have been slowing down significantly over several decades. In this context, which of the following might be the most likely implications of slowing wind speed?

1. Changing rainfall patterns
2. Low output from wind energy sector
3. Higher transpiration rate in agricultural sector
4. Air pollution in cities will take longer to get dispersed

Select the correct answer using the codes given below:

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

Ans) c

Exp) Option c is the correct answer.

A recent analysis has shown that wind speed in major Indian cities has been slowing down consistently and significantly over several decades. The average wind speed has fallen by 47% in Hyderabad, 47% in Bengaluru, 46% in Kolkata.

The implications of Slowing wind speed are:

Statement 1 is correct: Slow winds **cannot carry moisture** for long which will result in **altered rainfall patterns**.

Statement 2 is correct: **Falling wind speed** also has huge implications for the **wind-energy sector and thus for the clean energy sector**. Typically, a 5% fall in wind speed can lead to an almost 17% fall in wind energy in an average turbine.

Statement 3 is incorrect: **Agriculture** depends crucially on **transpiration** (a plant's exhalation of water vapour), which in turn needs evaporation which is dependent on wind speed. So, falling wind speed **reduce the transpiration rate** and impact plant growth.

Statement 4 is correct: **Wind-dispersed plant species** also depend on wind speeds for survival. They also affect **natural disasters and ocean dynamics**. This also means **that air pollution in cities** will take longer to get dispersed, exacerbating public-health problems.

Q.50) Why there is a great difference between annual range of temperature between steppes in northern and southern hemisphere?

- a) Orographic rainfall in the northern hemisphere brings down the temperature.
- b) Chinook, a hot local wind increases the temperature of northern grasslands.
- c) Continentality feature of the region in northern hemisphere and maritime influence in the southern hemisphere.
- d) Steppe type of climate has become more severe in southern hemisphere due to climate change.

Ans) c

Exp) Option c is the correct answer.

Continentality is the main reason behind the high annual range of temperature difference between steppes of the northern and southern hemisphere. Due to continentality, winters are very cold in the north, but due to **maritime influence in the south, winters are mild**. Thus, this brings a great difference in annual range of temperature. Also due to continentality, rainfall occurs due to convectional sources not due to orographic rainfall due to heating of the continental interiors. And rainfall in winter is caused by occasional depressions of the westerlies.

Source: GC Leong Chapter- 20 page- 149