



# EKAM IAS ACADEMY, HYDERABAD

(AN INSTITUTE FOR UPSC/TSPSC/APPSC)

8121017337 / 8121027337

## PRELIMS MISSION TEST-17 (06-04-2024)

### EXPLANATION

1. Consider the following statements about Western Disturbances in India

1. The inflow of western disturbances moves under the influence of westerly jet streams from the Mediterranean Sea
2. It influences winter weather conditions over most parts of the Northern Plains.
3. It brings abundant rain in the summer months.
4. They are beneficial for the Wheat cultivation in Punjab and Haryana

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** Western disturbances are storms that originate in the Caspian or Mediterranean Sea and bring nonmonsoonal rainfall to northwest India, according to the Indian Meteorological Department. These cyclonic disturbances are weather phenomena of the winter months brought in by the westerly Jet streams which flow from the Mediterranean region.

**Statement 2 is correct & 3 is incorrect:** It influences winter weather conditions over most parts of the Northern Plains, Western Himalayan, and eastern Himalayas. It brings little rain in the winter and not abundant rain in summer. The Northeastern parts of India also get some rainfall during the winter season. Arunachal Pradesh, Nagaland, and Assam may get about 50 cm of rainfall during the months of December, January and February. This rain is considered to be very good for wheat crops in the northern plains.

**Statement 4 is correct:** These Western Disturbances are responsible for rainfall over the parts of Punjab, Haryana, Delhi and western Uttar Pradesh in the winter season. This precipitation has great importance in agriculture, particularly for the Rabi crops such as Wheat, Barley and Gram etc.

2. Consider the following pairs about major peaks and their locations

Peak	Location
Dhupgarh	Satpura
Nokrek	Mikir
Mulangiri	Baba-Budan
Amarkantak	Harischandra Ranga

How many pairs given above are correctly matched?

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

Ans: b (Only two)

**Pair 1 is correctly matched:** Mount Dhupgarh, sometimes known as Dhoopgarh, is the highest point in Madhya Pradesh, India's Mahadeo Hills (Satpura Range). It is located at an elevation of 1,352 metres in Pachmarhi, Hoshangabad district (4,429 ft).

**Pair 2 is incorrectly matched:** Nokrek National Park, the core area of Nokrek Biosphere Reserve, is a national park located approximately 2 km from Tura Peak in the West Garo Hills district of Meghalaya, India. The highest point in the Garo Hills is Nokrek Peak, with an elevation of 1412 m. Whereas Mikir Hills are a group of hills located to the south of the Kaziranga National Park, Assam

**Pair 3 is correctly matched:** The Baba Budangiri Range was also called the Chandra Drona Parvatha. The Baba Budangiri Range includes Mullayanagiri (height 1930 metres or 6317 feet) and Dattagiri/Baba Budangiri (height

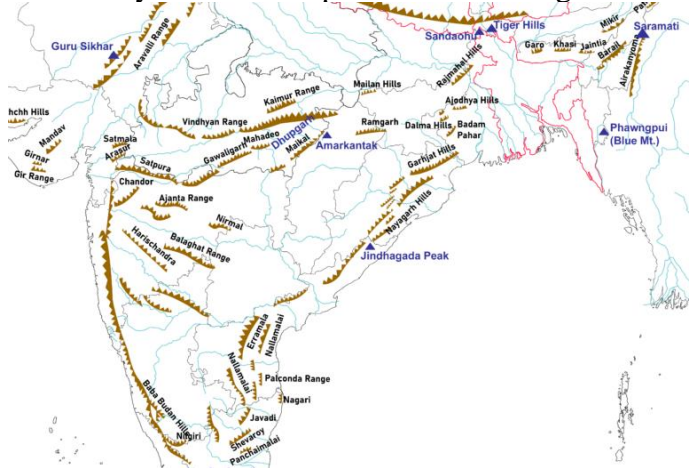


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### EXPLANATION

1895 metres), the highest peaks in Karnataka. Bababudan is a famous Muslim Sufi saint who brought 7 seeds of coffee from Saudi Arabia to India. It is famous for coffee production and iron reserves.

**Pair 4 is incorrectly matched:** Amarkantak peak is located in Madhya Pradesh's newly formed district of Anuppur. It is located around 1067 metres above mean sea level on the Maikal mountain range, which connects the Vindhya and Satpura mountain ranges.



3. Consider the following statements about Tidal Vegetation in India
1. It is found in abundance in the lower Ganga delta of West Bengal
  2. They are practically evergreen with thin leaves
  3. Palm, keora, and agar are some important species of tidal forest
  4. They will act as a natural buffer against storm surges

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** Tidal vegetation grows mainly in the deltaic regions of the Ganga, Mahanadi, Godavari, and Krishna which are flooded by tides and high sea waves. Mangrove is the representative of this type of vegetation. Sundari is the typical tree of tidal forests and is found in abundance in the lower Ganga delta of West Bengal. This is the reason why it is popularly known as Sunderban. It is known for its hard and durable timber.

**Statement 2 is incorrect:** These tidal areas are characterized by mud, silt, and water accumulated on the surface. Roots and branches of the trees are submerged under water for a specific period. They are also called mangrove forests and are evergreen with thick leathery leaves.

**Statement 3 is correct:** The deltas of the Ganga, the Mahanadi, the Krishna, the Godavari, and the Kaveri are covered by such vegetation. In the Ganga-Brahmaputra delta, Sundari trees are found, which provide durable hard timber. Palm, coconut, keora, agar, etc., also grow in some parts of the delta.

**Statement 4 is correct:** Mangroves provide valuable flood protection and risk reduction benefits to these coastal areas, and yet are a threatened species. Coastal ecosystems, such as reefs and mangroves, are crucial in reducing the damages caused by floods to both people and property by acting as natural barriers to waves and storm surge

4. Consider the following statements about hot weather conditions in India
1. The weather conditions are generally hot and dry throughout the country.
  2. The hot weather season lasts till the end of June throughout the country



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3. Loo, a hot, dry wind blows during December and January, mainly over the northern plains
4. Pre-monsoon showers in West Bengal are known as “Mango Showers”

How many statements given above are correct?

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

Ans: a (Only one)

**Statement 1 is correct & 2 is incorrect:** During the Hot weather season (March to May in the south and up to June in the north) in India, the sun's apparent movement towards the north increases the temperatures in the northern plains. As a result, spring sets in soon, giving way to the hot weather season, which lasts till the end of June in this region. The temperature increases northwards and reaches around 45°C in mid-May in most parts of the northern plains.

During this season, the wind direction is variable, and the weather conditions are usually hot and dry throughout the Indian Subcontinent

**Statement 3 is incorrect:** A striking feature of the hot weather season is the ‘loo’. These are strong, gusty, hot, dry winds blowing during the day over north and northwestern India, mainly during May and June (not during December and January). These winds cause heat stroke resulting in the deaths of hundreds of people every year.

**Statement 4 is incorrect:** During the hot weather season in India, dust storms cause drizzle in Northern Plains. The Light showers are experienced in Kerala, West Bengal, and Assam. In Kerala (not in West Bengal), these premonsoon showers are popularly known as “Mango Showers”. In West Bengal and Assam, they are called Northwesters or Kal Baisakhi. Sometimes, due to the high velocity of winds, these Northwesters cause heavy loss of life and property.

5. Which of the following rivers having their origin in Kanchenjunga?

1. Kosi
2. Gandak
3. Tista
4. Dhubri
5. Rapti

Select the correct answer from the codes given below?

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

Ans: a (1 and 3 only)

**Explanation:** Kanchenjunga, is the world's third highest mountain, with an elevation of 28,169 feet (8,586 metres). It is situated in the eastern Himalayas on the border between Sikkim state (North-eastern India) and Eastern Nepal. The major rivers that originate from Kanchenjunga are River Teesta and River kosi (tamur kosi).

- Teesta River originates from the Zemu glacier, which is at the east side of Kanchenjunga
- Kosi River originate in the Kanchenjunga
- Gandak River is the north bank tributary of the Ganga in India. It rises at 7620 m in Tibet near the Nepal border.
- Rapti rises in Nepal at an elevation of about 3048 m in the Dregaurra range and it is a left bank tributary of the ghaghra

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### EXPLANATION

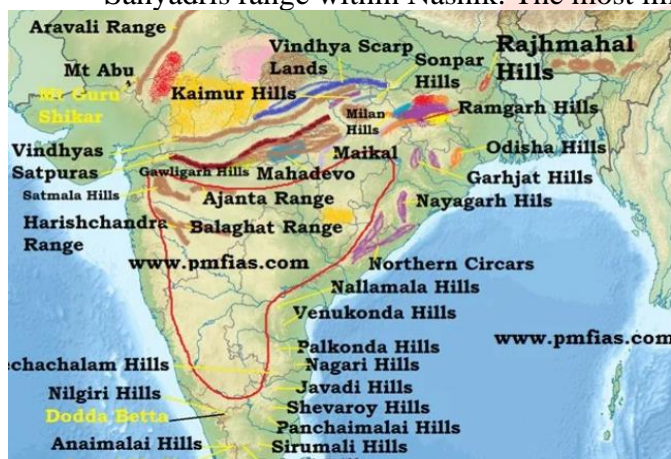
6. Arrange the following hills from North to South

- Bharner, Satmala, Mahadeo and Gawilghur
- Mahadeo, Gawilghur, Bharner and Satmala
- Bharner, Mahadeo, Gawilghur and Satmala
- Satmala, Gawilghur, Bharner and Mahadeo

Ans: c (Bharner, Mahadeo, Gawilghur and Satmala)

#### Explanation:

- Bharner Range is a mountain in the State of Madhya Pradesh. It is located at an elevation of 400 meters above sea level. It is a part of the Vindhyan Range
- Mahadeo hills lie to the east of Satpura hills. They are a range of hills in Madhya Pradesh. The hills are situated in the northern section of the Satpura Range.
- Gawilghur (also Gawilgarh or Gawilgad) was a well-fortified mountain stronghold of the Maratha Empire located north of the Deccan Plateau, in the vicinity of Melghat Tiger Reserve, Amravati District, Maharashtra. It is believed that the fort is 300 years old. It is a part of the Satpura range.
- Satmala is a mountain range that runs across Nashik District, Maharashtra. They are an integral part of the Sahyadris range within Nashik. The most important range of Nashik is the Satmala range.



7. In comparison to the Himalayan rivers, consider the following statements with respect to Peninsular rivers.

- These rivers are much younger than the Himalayan rivers
- These rivers make both deltas and estuaries
- These are mostly perennial
- These rivers usually have large basins

How many statements given above are correct?

- Only one
- Only two
- Only three
- All four

Ans: a (Only one)

**Statement 1 is incorrect:** The Peninsular River is older than the Himalayan River. This is evident from the broad, largely-graded shallow valleys and the maturity of the rivers.

**Statement 2 is correct:** Estuaries are formed by some peninsular rivers, such as the Narmada and the Tapi. Deltas are formed by Peninsular rivers, such as the Mahanadi, Godavari, Krishna, and Cauvery.



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### EXPLANATION

**Statements 3 & 4 are incorrect:** The Peninsular rivers receive water from rainfall, and water flows in these rivers only during the rainy season. As a result, these rivers are either seasonal or non-perennial. And also these rivers have small catchment regions and basins when compared to the Himalayan rivers.

8. Consider the following statements about tropical cyclones

1. A tropical cyclone is a rapid storm that originates only in warm ocean waters and has low pressure in the centre
2. 'Eye' is the central part of the tropical cyclone where violent storms and thunderstorm clouds are present
3. Strong vertical shear increases the intensity of the tropical cyclone.
4. El Nino events inhibit tropical cyclones in the Atlantic Ocean

How many statements given above are correct?

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

Ans: b (Only two)

**Statement 1 is correct:** A tropical cyclone is a rapidly rotating storm originating over tropical oceans from where it draws the energy to develop. It has a low-pressure center which is created through the warm ocean water and clouds spiraling toward the eyewall.

**Statement 2 is incorrect:** The main parts of a tropical cyclone are the rainbands, the eye, and the eyewall. In the very center of the storm, air sinks, forming an "eye" that is mostly cloud-free. The tropical cyclone's center is a relatively calm, generally clear area of sinking air and light winds that usually do not exceed 15 mph (24 km/h) and is typically 20-40 miles (32-64 km) across. An eye will usually develop when the maximum sustained wind speeds go above 74 mph (119 km/h) and is the calmest part of the storm.

**Statement 3 is incorrect:** Over the Atlantic basin, it is associated with stronger upper-level westerly winds and stronger lower-level easterly trade winds, both of which increase the vertical wind shear and suppress hurricane or tropical cyclone activity.

**Statement 4 is correct:** El Niño suppresses Atlantic hurricane or tropical cyclone activity by increasing the amount of sinking motion and increasing atmospheric stability. Thus, Strong vertical wind shear can rip a developing hurricane or tropical cyclone apart, or even prevent it from forming.

9. Consider the following statements with reference to the Cold Desert of India (Ladakh)

1. The Karakoram range in the north and the Zaskar mountains in the south enclose it.
2. The rivers do not form deep valleys and gorges in these regions.
3. The air at this altitude is so thin that the heat of the Sun can be felt intensely
4. Drass, world's 2<sup>nd</sup> coldest habitable place is located in it

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** The Cold Desert of India is situated in the Himalayas and stretches from Ladakh (in the state of Jammu and Kashmir, or J&K) in the north to Kinnaur (in the state of Himachal Pradesh, or H.P.) in the south. The Karakoram Range in the north and the Zaskar mountains in the south enclose the cold desert, the Ladakh.



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### EXPLANATION

**Statement 2 is incorrect:** Several rivers flow through Ladakh, Indus being the most important among them. The rivers form deep valleys and gorges. These deep valleys with steep rock sides and gorges were formed by the down-cutting of the river during the period of the Himalayan uplift.

**Statement 3 is correct:** The altitude in Ladakh varies from about 3000m in Kargil to more than 8,000m in Karakoram. Due to its high altitude, the climate is extremely cold and dry. The air at this altitude is so thin that the heat of the sun can be felt intensely. This area experiences freezing winds and burning hot sunlight. We will be surprised to know that if we sit in the sun with our feet in the shade, we may suffer from both sunstroke and frostbite at the same time.

**Statement 4 is correct:** Drass, the world's 2<sup>nd</sup> coldest habitable place is located within the cold desert area.

10. A state in India has the following characteristics

1. It is bounded by independent countries on three sides
2. In this state, Sun appears first in India
3. The Mountainous terrain is divided into valleys by rivers flowing north to south

Which one of the following states has all of the above characteristics?

- (a) Assam
- (b) Sikkim
- (c) Tripura
- (d) Arunachal Pradesh

Ans: d (Arunachal Pradesh)

Explanation: Arunachal Pradesh is Popularly known as the 'Land of the Dawn-lit-Mountains' and 'Paradise of botanists'. It is India's remotest state and the first Indian soil to greet the rising sun because it is located on the easternmost side of the nation. It is located on the Northeast tip of India and surrounded by three independent countries on three sides those were china in the north, Myanmar in the east and Bhutan in the west.

11. Consider the following statements about 'Black Soils'

1. The colouration of the Black soil is due to the presence of Silica and Aluminium compounds
2. The parent material of the soils are Deccan lavas, genisses and granites
3. In the upland regions, the soil may be less fertile compared to the soils found in the valleys and lowlands
4. Cereals, oilseed vegetables and citrus fruits are grown over the soils

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is incorrect:** Black soils, also known as Regur (cotton-soil) This variety fall in the category of tropical chernozems. The presence of 'titaniferous magnetite' compounds of iron and magnesium gives the soil its dark black colour and not due to the presence of compounds such as Silica and Aluminium.

**Statement 2 is correct:** The parent material of the soils is Deccan lavas, genesis and granites that are found in Maharashtra, Gujarat, Madhya Pradesh, Karnataka, Tamil Nadu, Uttar Pradesh and Rajasthan and make up over 5.15 square kilometres of the land area of our country.

**Statement 3 is correct:** In the upland regions, the soil may be less fertile compared to the soils found in the valleys and lowlands. The soils are sticky when wet and crack up when dry and this process helps in the absorption of nitrogen from the atmosphere.



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**Statement 4 is correct:** Cotton, cereals, oilseed vegetables and citrus fruits are grown over the soils. The soil is rich in minerals like Iron, lime, calcium, potash, magnesium and aluminium. It has high water retaining capacity and is clayey in texture. Crops like cotton, tobacco, sugarcane, jowar etc. can be grown on black soil.

12. Consider the following statements about rivers and their tributaries

River	Tributary
Godavari	Pranhita
Narmada	Kundi
Mahanadi	Moyar
Tapi	Orsang

How many pairs given above are correct?

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

Ans: b (Only two)

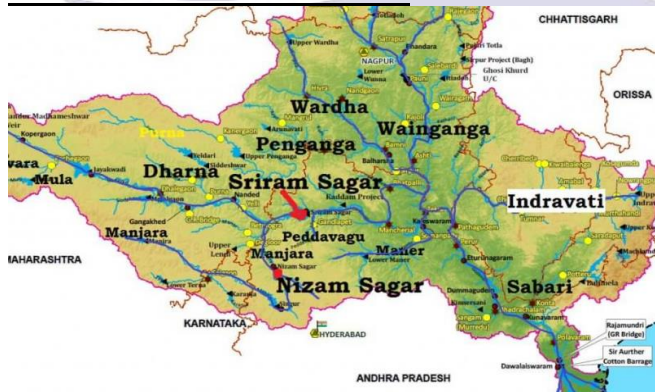
**Pair 1 is correctly matched:** The Godavari River is the largest in peninsular India and is known as the 'Dakshina Ganga'. The Godavari River rises in Sahyadri hills, near Nasik in Maharashtra. Pranhita is the largest tributary of the Godavari, covering about 34% of its drainage basin. It is an inter-State sub-basin among the States of Madhya Pradesh, Chhattisgarh, Maharashtra, and Telangana. Pranhita (combined flow of Wainganga, Penganga, and Wardha) river forms the boundary between the states of Telangana and Maharashtra.

**Pair 2 is correctly matched:** The Narmada River of length 1300 km and drainage basin area of 92670 sq km rises from the plateau of Amarkantak of the Maikal Hills of Chhattisgarh. The tributary of this river is Heran, Orsang, Barna, Kolar, Burhnar, Banjar, Shar, Shakkar, Dudhi, Tawa, and Kundi.

**Pair 3 is incorrectly matched:** The Moyar River is one of the tributaries of the Bhavani in Tamil Nadu, South India. The Mayar river originates from a small town called Mayar off the Masinagudi–Ooty road. Hence, it is not a tributary of Mahanadi.

**Pair 4 is incorrectly matched:** Tapi River is a river in central India, and the Tapi is the second largest westward draining interstate river basin. But the Orsang river rises in the Vindhya hill ranges of the Jhabua district of Madhya Pradesh and runs south-westerly to merge into the Narmada river and is one of the tributaries of the Narmada river.

#### Godavari and its tributaries:



#### Narmada and its tributaries:



#### Tapti river and its tributaries:



13. Arrange the following west-flowing rivers of India from south to north direction

1. Pampa
2. Saraswati
3. Zuari
4. Sabarmati

Select the correct code given below?

- (a) 1-2-3-4
- (b) 1-2-4-3
- (c) 2-1-3-4
- (d) 2-3-4-1

Ans: a (1-2-3-4)

Explanation:

**Pampa:** Kerala: The Pampa River (also called Pampa River) is the longest river in the Indian state of Kerala after Periyar and Bharathappuzha, and the longest river in the erstwhile former princely state of Travancore. Sabarimala Temple dedicated to Lord Ayyappa is located on the banks of the river Pampa.

The river is also known as Dakshina Bhageerathi. During ancient times, it was called 'River Baris' and jordan of malankara. The River Pampa enriches the lands of Pathanamthitta district and the Kuttanad area of Alappuzha district and few areas of Kottayam

**Saraswati:** Originating from the Shimoga district of Karnataka, Saravati is an important west-flowing river. It drains a catchment area of 2209 sq. km. This 128 Km long river is also known for creating the famous Jog Falls.

**Zuari: Goa:** The Zuari River Zuvari, is the largest river in the state of Goa, India. It is a tidal river which originates at Hemad-Barshem in the Western Ghats. The Zuari is also referred to as the Aghanashani in the interior regions. It flows in a south-westerly direction through the talukas of Tiswadi, Ponda, Mormugao, Salcete, Sanguem and Quepem.

**Sabarmati:** Gujarat & Rajasthan Sabarmati River flows through the Indian states of Rajasthan and Gujarat. With a length of 371 Km, it comprises two streams of water- Sabar, and Hathimati. Originating from Tepur in the Udaipur district of Rajasthan, the major tributaries of this river include Wakal, Hathimati, Vatrak, and Sei. Sabarmati reservoir, Hathmati reservoir, and Meshwo reservoir project are some of the important projects on this river.





## PRELIMS MISSION TEST-17 (06-04-2024)

### EXPLANATION

14. Arrange the following ores in the increasing order of their iron content

1. Limonite
2. Siderite
3. Haematite
4. Magnetite

Select the correct answer using the codes given below

- (a) 1-2-3-4
- (b) 1-3-4-2
- (c) 3-4-1-2
- (d) 3-4-2-1

Ans: c (3-4-1-2)

**Explanation:** Iron, the second most abundant metal in the earth's crust, is extracted from its oxides; Haematite ( $\text{Fe}_2\text{O}_3$ ), Magnetite ( $\text{Fe}_3\text{O}_4$ ), Limonite ( $\text{FeO}(\text{OH})$ ), carbonate Siderite ( $\text{FeCO}_3$ ) are the important iron ores, and Iron pyrites ( $\text{FeS}_2$ ) are not considered to be an important ore of iron

Iron ore in increasing order of their iron

- Hematite: 68%
- Magnetite: Up to 60%
- Limonite: 35-55%
- Siderite: Less than 40%

15. Consider the following statements about Himalayas

1. It is a complex mountain system formed mostly of sedimentary and metamorphic rocks.
2. The Shiwaliks are separated from the Northern Plains of India by the Main Boundary Thrust.
3. Duns and Duars are the longitudinal valleys or alluvial plains found in the Himalayan region.
4. Himalayan Frontal Fault separate Shiwaliks from Lesser Himalayas

How many statements given above are correct?

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

Ans: b (Only two)

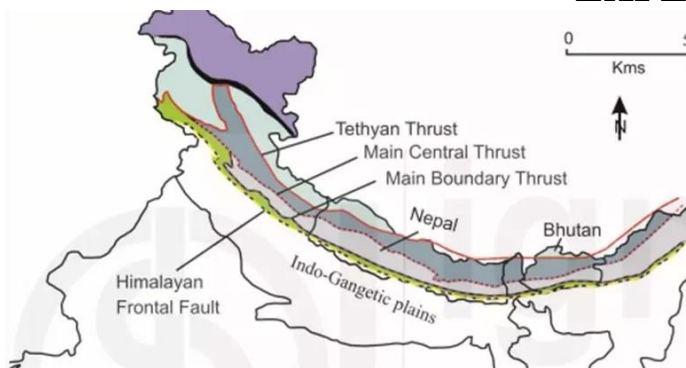
**Statement 1 is correct:** Fold mountains are defined by complex, vital geologic forms known as folds. Fold mountains are created where two or more of Earth's tectonic plates are pushed together. At these colliding, compressing boundaries, rocks and debris are warped and folded into rocky outcrops, hills, mountains, and entire mountain ranges. Most of these mountains are composed primarily of sedimentary rock and metamorphic rock formed under high pressure and relatively low temperatures. The rugged, soaring heights of the Himalayas, Andes, and Alps are all active fold mountains. The sedimentary rocks of the Himalayas include shale and limestone. Metamorphic rocks of the region include schist and gneiss.

**Statements 2&4 are incorrect:** A surface along which a rock body has broken/fractured and has been displaced is known as a fault. The Himalayan Front Fault is the one that separates the Great Plains of India from the Shiwaliks, whereas the Main Boundary Fault separates the Shiwaliks from the Lesser Himalayas.

**Statement 3 is correct:** The Outer Himalayas or the Siwaliks is the outermost range of the Himalayas. The altitude varies between 900-1100 meters and the width lies between 10-50 KM. They have low hills like Jammu Hills, etc. The longitudinal valleys lying between Siwalik and Lesser Himalayas (Himachal) are called Duars and 'Duns' like Dehra Dun, Kotli Dun, and Patli Dun are also present here.

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### EXPLANATION



16. Consider the following statements about National Water ways and the River they are associated with

National Water Way	River
National Water Way 2	Ganga-Bhagirathi-Hoogly river system
National Water Way 4	Godhawari river system
National Water Way 68	Cumberjua river system
National Water 73	Narmada river system

How many pairs given above are correct?

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

Ans: a (Only one)

**Pair 1 is incorrectly matched:** National Water Way 2 connects Dhubri and Sadiya on Brahmaputra River in Assam

**Pair 2 is incorrectly matched:** National Water Way 4 connects Vijayawada and Muktyala on river Krishna in Andhra Pradesh

**Pair 3 is incorrectly matched:** National Water Way 68 is located within Goa on Mandovi river

**Pair 4 is correctly matched:** National Water Way is located in Gujarat on Narmada River

17. Consider the following statements about Geological formation of India

1. Peninsular India was a part of the old landmass since the formation of the Earth's crust.
2. The Indo-Gangetic plain came into existence during the Tertiary Period.
3. The Himalayas started to develop during the Pleistocene period

Which of the statements given above are incorrect?

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

Ans: c (2 and 3 only)

**Statement 1 is correct:** The Geological history of India is complex as well as varied. Geologically, about 200 million years ago, the subcontinent of India was a part of the Gondwanaland (the Southern Continent). The geological history of India is unique, as Peninsular India was a part of the old landmass since the formation of the Earth's crust.



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### EXPLANATION

**Statements 2&3 are incorrect:** Indo-Gangetic Plain or North Indian Plain, stretching westward from the combined delta of the Brahmaputra River valley and the Ganges River to the Indus River valley. The region contains the subcontinent's richest and most densely populated areas. The greater part of the plain is made up of alluvial soil deposited by the three main rivers and their tributaries. Whereas the Himalayas were developed by the collision of the Indian and Eurasian plates during the Tertiary period, these plains came into existence by filling up the sediments from the Himalayas during the Pleistocene period. Thus, the Himalayas formed during the Tertiary period, and the Indo- Gangetic plain was developed during the Pleistocene period.

18. Consider the following statements about Southwest Monsoons in India

1. There may be dry spells in between rainy periods.
2. These winds generally strike the Indian coast in the first week of June.
3. It gives rainfall to all parts of India except the Coastal regions of Tamil Nadu and Andhra Pradesh.
4. The Quantity of rainfall decreases as the monsoonal winds move towards the west over the northern plains.

How many statements given above are incorrect?

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

Ans: a (Only one)

**Statement 1 is correct:** Strong winds and wet spells remain for a few days during monsoon, followed by weak winds. This causes dry spells to occur between two wet spells. Dry spells are associated with days when winds blow parallel to the west coast. Dry spells occur over Western Rajasthan due to thermal conditions in the lower atmosphere, such as temperature inversion.

**Statement 2 is correct:** The arrival of the monsoon over Kolkata is 7 June and the Arabian Sea branch of the monsoon normally strikes Mumbai on 10 June. Both the branches of the monsoon currently merge in the Gangetic Plain and gradually extend over Bihar, Jharkhand, Chhattisgarh, Madhya Pradesh, Uttar Pradesh, Uttarakhand, Haryana, Himachal Pradesh, Punjab, Jammu and Kashmir, and finally to Rajasthan, so that by the first week of July, i.e., within a mean interval of 29 days since the onset in Kerala. The south-west Monsoon is established all over India, excluding the Thar Desert. In the Thar Desert, the monsoon reaches by the middle of July.

**Statement 3 is incorrect:** The rain shadow effect of the Arabian Sea current and Bay of Bengal current flowing parallel to the coast makes the Tamil Nadu and Andhra Pradesh coast and the interior parts of the rain shadow regions of the western Ghats generally dry throughout the south-west monsoon period.

**Statement 4 is correct:** The Bay of Bengal branch is divided into two sub branches after striking eastern Himalayas. One branch moves towards the east northeast direction and causes heavy rains in Brahmaputra valley and northeast hills of India. The other branch moves towards northwest along the Ganga valley and the Himalayan ranges causing heavy and widespread rains over vast areas. In this region, the amount of rainfall decreases from east to west owing to the progressive decrease in humidity of these winds.

19. Consider the following pairs about vegetation and their available location in India

Vegetation	Region
Tropical Evergreen	Western Ghats
Temperate Evergreen	Central Parts of India
Thorny Forest	Rajasthan
Dry Deciduous Forests	Northeast India

How many pairs given above are correct?

- (a) Only one



# EKAM IAS ACADEMY, HYDERABAD

(AN INSTITUTE FOR UPSC/TSPSC/APPSC)

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### EXPLANATION

- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

**Pair 1 is correctly matched:** Tropical evergreen forests are restricted to heavy rainfall areas of the Western Ghats and the island groups of Lakshadweep, Andaman and Nicobar, upper parts of Assam and Tamil Nadu coast. They are at their best in areas having more than 200 cm of rainfall with a short dry season.

**Pair 2 is incorrectly matched:** The temperate evergreen forests are located in the mid-latitudinal coastal region. They are commonly found along the eastern margin of the continents. Temperate evergreen vegetation is found in northeast India regions.

**Pair 3 is correctly matched:** The Thorn Forests are the natural vegetation consisting of thorny trees and bushes. This type of vegetation is found in the north-western part of the country, including semi-arid areas of Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Haryana.

**Pair 4 is incorrectly matched:** Tropical Deciduous forests are the most widespread forests in India. They are also called monsoon forests and spread over the region receiving rainfall between 70 cm and 100 cm. Trees of this forest type shed their leaves for about six to eight weeks in dry summer. Based on the availability of water, these forests are further divided into moist and dry deciduous. The moist deciduous is found in areas receiving rainfall between 100 and 200 cm. These forests exist, mostly in the eastern part of the country — North-eastern states, along the foothills of the Himalayas, Jharkhand, West Odisha and Chhattisgarh, and on the eastern slopes of the Western Ghats.

20. Consider the following statements

1. These soils are locally termed as reh, kallar and usar.
2. This soil is generally infertile and unfit for agricultural use.
3. These soils are mostly found in areas with a dry climate and poor drainage

Which one of the following Soils best applies to the above statements?

- (a) Arid Soils
- (b) Saline Soils
- (c) Peaty Soils
- (d) Laterite Soils

Ans: b (Saline Soils)

**Explanation:** Saline soil is found in arid and semiarid areas of Rajasthan, Punjab, Haryana, Uttar Pradesh, and Bihar. Alkaline encrustations of sodium, calcium, and magnesium are found in these soils. The saline soils occupy 1.70 lakh square kilometers of the land surface of the country in areas of dry climatic conditions and poor drainage characteristics of waterlogged and swampy areas. Saline soils are locally termed reh, kallar, and usar and are generally infertile and so are unfit for agricultural use. These soils are quite common in western Gujarat, deltas of eastern coastal plains, and the Sundarbans delta of West Bengal. In the Rann of Kutch, the monsoon winds laden with sea salts deposit the salt particles on the soil and form a crust on the surface. The intrusion of seawater into the deltas also results in the formation of saline soils. In many places, as a result of over-irrigation, fertile soils are also turning into saline soils. In Punjab and Haryana, farmers are advised to add gypsum to the soil to check the growing problem of salinity.

21. Consider the following statements about Karewa formation

1. They are the lacustrine deposits of sand, clay, loam, silt and boulders.
2. The Kashmir Himalayas are famous for Karewa formations
3. They are useful for the cultivation of Saffron, Almond and Walnut.



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How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) None

Ans: c (Only three)

**Statement 1 is correct:** Karewas are the lacustrine deposits in the Valley of Kashmir and Bhadarwah Valley of the Jammu Division of Jammu & Kashmir. Karewas are the flat-topped mounds that border the Kashmir Valley on all sides. They are composed of fine silt, clay, sand, and boulder gravel.

**Statement 2 is correct:** According to geologists, during the Pleistocene Period, the entire valley of Kashmir was under water. Subsequently, the Baramullah Gorge was created by the endogenetic forces, and the lake was drained through these gorges. The deposits left in the process are known as karewas.

**Statement 3 is correct:** The Kashmir Himalayas which are famous for the karewa formation is devoted mainly to the cultivation of saffron, almond, walnut, apricot, apple, and peach orchards in the areas of Palampur, Pulwama, and Kulgam in the Kashmir Valley.

22. Which of the following statement best describe 'Karakoram Anomaly'?

- (a) In recent times, there was an abnormality in the existing Line of Control runs from Manawar in Jammu to Indira Col on the trijunction in the Karakoram Mountain rang
- (b) Although it is a cold desert area, the Karakoram Mountain Range is home to some rare and threatened species of flora and fauna
- (c) Recently, both the Indian and Chinese troops completed the process of disengagement from Patrolling Point near Karakoram in the Eastern Ladakh sector
- (d) Few pockets of glaciers in the Karakoram Range are resisting glacial melt due to global warming

Ans: d (Few pockets of glaciers in the Karakoram range are resisting glacial melt due to global warming)

**Explanation:** The 'Karakoram Anomaly' is termed as the stability or anomalous growth of glaciers in the central Karakoram, in contrast to the retreat of glaciers in other nearby mountainous ranges of the Himalayas and other mountainous ranges of the world. An attempt is made to provide mechanisms leading to such a process and thus 'affirming' it. Given this, meteorological and cryospheric processes, viz., glacial-atmosphere coupled interactions in tandem with temperature-moisture interactions and radiative balance- on glaciated regions are simultaneously argued over the Karakoram and the adjacent Ladakh. Recently, Researchers have taken a significant leap toward solving why few pockets of glaciers in the Karakoram Range resist glacial melt due to global warming, defying the trend of glaciers losing mass across the globe.

23. Consider the following raw materials

- 1. Latex
- 2. Lac
- 3. Willow
- 4. Jute
- 5. Silk

How many of the above are plant derivatives?

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

Ans: c (Only three)



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### EXPLANATION

**Statement 1 is correct:** Latex is a milky white fluid derived from rubber trees. Latex is actually a colloidal dispersion of rubber in water. Latex is produced in vessels or special cells called laticifers, single cells, or strings of cells that form tubes, canals, or networks in various plant organs. This differs from the internal secretory tissues (pockets, cavities, or canals) in which most resin is produced. Natural rubber latex is most commonly used to make items like gloves, swim caps, chewing gum, mattresses, catheters, rubber bands, balloons, tennis shoes, and many other sporting goods.

**Statement 2 is incorrect:** Lac is a resin that is derived from animals. Lac is obtained via the culture of these insects, a procedure known as lac culture. Lac culture necessitates proper host plant care, regular trimming of host plants, propagation, lac collecting, and processing. Lac growing host trees are Palash, Ber and Kusum trees. Lac is used to making paints, varnishes, printing inks, cosmetics, toys, bracelets, sealing wax, gramophone records, bangles, and other items. It is used as a filler substance in the hollows of gold and silver jewellery by jewellers and goldsmiths

**Statement 3 is correct:** Willows, also known as salallows and osiers, are a genus of over 400 species of generally deciduous trees and shrubs found predominantly on moist soils in cold and temperate climates. Willow bark has been used for centuries in China and Europe. It is still used today to treat pain (especially low back pain and osteoarthritis), headache, and inflammatory disorders including bursitis and tendinitis.

**Statement 4 is correct:** Jute fibre is obtained from the stalks of the jute plant. Jute plant stalks are wrapped together and steeped in water for roughly 20 days after harvesting. The fibres are then rinsed in clear, flowing water after being separated from the stem in long threads. Jute is extracted from the bark of the white jute plant (*Corchorus capsularis*) and, to a lesser extent, from the Tossa jute. Jute is often used to make gunny bags, potato sacks, carpets, curtains, coarse clothing, and ropes, among other things. Nowadays, high-quality jute is also used to make jute fabrics.

**Statement 5 is incorrect:** Silk is a protein fibre consisting primarily of fibroin produced by certain insect larvae to build cocoons. The most well-known silk is made from the cocoons of mulberry silkworm larvae (*Bombyx mori*) reared in captivity (sericulture). Silk is mostly used to make apparel such as shirts, trousers, ties, skirts, and sarees and is widely used in producing various home décor furnishings.

24. Consider the following statements

1. Bhor Ghat joins Nashik with Mumbai
2. Shencottah Pass joins Kottayam with Madurai
3. Haldighat joins Rajsamand and Udaipur
4. Thal Ghat joins Mumbai with Pune

How many pairs given above are correct?

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

Ans: b (Only two)

**Statement 1 is incorrect:** A pass is a gap, or break, in high, rugged terrain such as a mountain ridge. Bhor Ghat connects Pune and Mumbai. This Ghat provides easy connectivity between Mumbai and Khopoli. This Ghat opened Mumbai to the Deccan plains of Peninsular India

**Statement 2 is correct:** The Shencottah Pass in Tenkasi District connects the Madurai district of Tamil Nadu with the Kottayam district of Kerala. It is located in the Western Ghats.

**Statement 3 is correct:** Haldighati is a famed mountain pass in the hills of the Aravalli Range. Haldighati derived its name from the term 'Haldi' means turmeric in English, used as a spice in Indian delicacies, and 'Ghati' means valley, which together make the name Haldighati. This pass connects Udaipur with Rajsamand.

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**Statement 4 is incorrect:** Thal Ghat is a ghat section in the Sahyadri Range of Western Ghats near the town of Kasara in Maharashtra. This Pass connects Nashik with Mumbai.



25. In the second stage of the nuclear power programme, the thorium mat is used in the nuclear reactors. The fuel rods in such reactors are fabricated with Molybdenum and Zircon. In this context, which of the following states provides a one-stop destination for mining all the 3 minerals?

- (a) Andhra Pradesh
- (b) Odisha
- (c) Tamil Nadu
- (d) Gujarat

Ans: c (Tamil Nadu)

**Explanation:** According to the Indian Bureau of Mines, Tamil Nadu possesses all three minerals (ie) thorium, Molybdenum and zircon which are the required minerals for the second stage of nuclear power programme.

Zirconium alloys are used as structural components for light and heavy water nuclear reactor cores because of their low capture cross-section to thermal neutrons and their good corrosion resistance

The presence of Molybdenum (Mo) in Zircon (Zr) alloys makes them more corrosion resistant increasing their resistance to hydrogenation and nodular corrosion during an interaction between zirconium components and high temperature water and steam in nuclear reactors.

26. Consider the following statements

1. In the winter season, the upper air westerly jet streams are bifurcated into two branches over the Indian subcontinent.
2. The strength of the westerly jet stream contributes to the intensification of high pressure formed over the southern Indian Ocean during summer.

Which of the statements given above are correct?

- (a) Only 1
- (b) Only 2



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### EXPLANATION

- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: a (Only 1)

**Statement 1 is correct:** The changes in the upper air circulation over the Indian landmass are one of the causes of the sudden outbreak of monsoons in India. Jet streams in the upper air system influence the climate of India through the Westerly Jet stream. This jet stream is bifurcated by the Himalayan ranges. The northern branch of this jet stream blows along the northern side of the Himalayas. The southern branch blows eastwards and south of the Himalayan ranges along 25° N latitude. Meteorologists believe that the Southern branch of the jet stream significantly influences India's winter weather conditions. This jet stream is responsible for bringing western disturbances from the Mediterranean region into the Indian sub-continent. Winter rain and hail storms in north-western plains and occasional heavy snowfall in hilly regions are caused by these disturbances. These are generally followed by cold waves throughout the northern plains

**Statement 2 is incorrect:** Jet streams are high altitude (9000-12000 m) Westerly winds between middle latitudes in the Northern hemisphere. Recent research has shown that these winds considerably impact surface weather conditions. The summer-time heating of the Tibetan Plateau creates low pressure over the region, producing tropical easterly jet on the southern side of the Himalayas. This tropical easterly jet stream first develops in longitudes east of India and then extends westwards across India and the Arabian Sea to eastern Africa. Blowing along the Kolkata-Bangalore axis, the air under the easterly jet descends over the Indian Ocean near Mascarenes and Zanzibar Islands of Tanzania and further intensifies the high pressure formed over the southern Indian ocean. After crossing the equator, winds become South-Westerly and are known as the South-Westerly Summer Monsoons. These surface winds have the vast potential for South-Westerly summer, monsoon, and precipitation. Therefore, the strength of the Easterly jet stream (not westerly) contributes to the intensification of high pressure formed over the Southern Indian Ocean.

27. Consider the following statements about Alluvial soils of India

1. Khadar soils are the new alluvial deposits which are lighter in colour and have a sandy texture
2. Khadar is deposited near the riverbanks while Bhangar found away from the banks of the river on higher interfluvial zones
3. At the foothills of the Himalayas, Bhabhar soils are found, which are characterized by pebbles and swamps
4. Sal forests are predominant in Terai belt

How many statements given above are correct?

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

Ans: d (All four)

**Statement 1 is correct:** Alluvial soils are the most important soil type found in India and are also found in the largest area. They are made up of sediments deposited by rivers in the interior parts of India while sea waves help in depositing them over the coastline. Khadar soils are the new alluvial deposits which are lighter in colour and have a sandy texture while Bhangar soils are the older alluvium, darker in colour and possess a more clayey composition.

**Statement 2 is correct:** Khadar soils are deposited near the riverbanks while Bhangar soils are present in regions on higher interfluvial zones that are located beyond the floodplains and contain older alluvial soil with a higher sandy loam component.





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**Statement 3 is correct:** At the foothills of the Himalayas, bhabhar soils are found which are characterized by pebbles and swamps that may be found in the Terai region. They are made of tiny stones which get carried down from the highlands by rivers.

**Statement 4 is correct:** This lowland belt is characterised by tall grasslands, scrub savannah, sal forests and clay rich swamps. In North India, the Terai spreads from the Yamuna River eastward across Haryana, Uttarakhand, Uttar Pradesh, Bihar and West Bengal. The Terai is part of the Terai-Duar savanna and grasslands eco-region.

28. In general, a sustained Positive value of Southern Oscillation indicates

1. Dry weather conditions in Southeast Asia
2. A warm Peru Current
3. Good Southwest Monsoon
4. A rise in depth of thermo-cline in the western half of the Pacific Ocean

How many statements given above are correct?

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

Ans: b (Only two)

**Statement 1 is incorrect:** Changes in the pressure conditions over the Southern oceans also affect the monsoons. Normally when the tropical eastern South Pacific ocean experiences high pressure, and the tropical eastern Indian Ocean experiences low pressure. But in certain years, there is a reversal in the pressure conditions, and the eastern Pacific has lower pressure than the eastern Indian Ocean. This periodic change in pressure conditions is known as the Southern Oscillation. Southern oscillation causes

- Monsoon rains in India and Southeast Asia have been unusually heavy.
- Monsoon rains in India and Southeast Asia have been unusually heavy.

**Statement 2 is incorrect:** This oscillation is associated with large east-west mass shifts in the tropical atmosphere between the Indian, West Pacific, and East Pacific Ocean, usually cold waters of the Peru current.

**Statement 3 is correct:** An ascending branch of Walker Circulation over Australia and Indonesia with its descending branch over the western side of South America (coasts of Peru and Chile). A difference in surface pressure and temperature over the western and eastern tropical Pacific Oceans causes the Walker circulation. A pressure gradient from east to west generates an air circulation from the eastern Pacific, i.e. along the Peru-Chile coast, to the western Pacific (Australia/New Guinea). This air circulation pushes surface water towards the western Pacific, causing cold water from underneath the ocean to rise. Such a normal condition leads to the normal south-west monsoon.

**Statement 4 is correct:** A thermocline is the transition layer between the warmer mixed water at the surface and the cooler deep water below. It is relatively easy to tell when you have reached the thermo-cline in a water body because of a sudden temperature change. Accumulation of warm water in the western Pacific, there will be a rise in depth of thermo-cline which is balanced by the Equatorial Counter Current and high rate of evaporation.

29. Consider the following statements about Red soils in India

1. The texture of the soil varies from sand to clay and loam
2. In general, these soils are rich in lime, phosphate, magnesia, nitrogen, humus, and potash
3. In Uplands, the soil is coarse and infertile, while in Plains, the soil is fine and fertile.

Which of the statements given above are correct?

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



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(c) 2 and 3 only

(d) 1, 2 and 3

Ans: b (1 and 3 only)

**Statement 1 is correct:** Red soils cover approximately 61 million hectares or 18.5% of the country's total area. They are mostly found over the Peninsula, from Tamil Nadu in the south to Bundelkhand in the north and from Rajmahal in the east to Kathiawad and Kutch in the west. Crystalline and metamorphic rocks such as acid granites, gneisses, and quartzites are the primary parent rocks of the red soil. Their colour is mainly red because of the presence of ferric oxides. Generally, the top layer is red, while the horizon below is yellowish in colour. Soil Texture indicates the relative content of particles of various sizes, such as sand, silt and clay, in the soil. The Red soil texture of the soil varies from sand to clay and loam.

**Statement 2 is incorrect:** They are deficient in calcium, magnesium, phosphates, nitrogen, and humus and high in potassium and potash.

**Statement 3 is correct:** The coarse-grained red soils of the dry uplands areas are poor, gravelly, and porous—however; Finegrained red soil in the lower areas is rich, black, and fertile.

30. With reference to the climate of India, the retreat of Southwest Monsoon winds takes place due to

- (a) The apparent shift of the sun from the equator towards the Tropic of cancer
- (b) The weakening of low-pressure area over the north-western parts of India
- (c) The origin of severe cyclonic storms in the Bay of Bengal
- (d) The shifting of the high-pressure area to the south Indian ocean

Ans: b (The weakening of low-pressure area over the north-western parts of India)

Explanation: The retreat of South-west monsoon winds is caused by the weakening of the low-pressure areas of north-western regions. This is due to the low temperatures caused by the apparent shift of the sun towards the equator, as well as widespread rains that significantly lower temperatures. Then the low pressure area shift to the south. The changes in atmospheric pressure patterns cause the Southwest monsoons to retreat.

31. Consider the following pairs about soil type and major crop grown

Soil type	Crop
Laterite soil	Cashew nuts
Sub-montane soil	Rice
Red soil	Ground nut
Black soil	Cotton

How many pairs given above are correct?

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

Ans: d (All four)

**Pair 1 is correctly matched:** Laterite soils are created by the chemical breakdown of rocks primarily composed of iron oxide, giving them their typical pink or red tint. These soils can be found in India's central, eastern, and southern regions. These residual soils are made of basalt and have a high specific gravity. The majority of these soils are made up of calcite depositions. Laterite soils are suitable for growing plantation crops like tea, coffee, rubber, cinchona, coconut, areca nut, etc. and are more suited to cashew nut crops.

**Pair 2 is correctly matched:** Sub-montane soil is found in the Tarai region of the sub-montane, which stretches in a narrow span from Jammu and Kashmir to Assam. These soils were produced as a result of the deposition of



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eroded debris from the Shiwaliks and the Lesser Himalayas. The soil is fertile and promotes lush forest growth. In the sub-montane soil, the main crop is rice.

**Pair 3 is correctly matched:** The Red Soil formed due to Weathering of metamorphic and igneous rocks. A high iron concentration causes the soil's red colour. The texture of the soil varies from sandy to clayey, but it is mostly loamy. It is high in potash but low in phosphate, humus, and nitrogen. This type of soil can be found in Tamil Nadu, Madhya Pradesh, Jharkhand, Odisha, sections of Karnataka, and southeast Maharashtra. This soil is suitable for many crops, including wheat, tobacco, millet, oilseed, groundnut, and fruit trees.

**Pair 4 is correctly matched:** Black Soil is often referred to as "Regur Soil" or "Black Cotton Soil." It accounts for around 15% of the country's overall land area. It encompasses most of the Deccan Plateau, including parts of Maharashtra, Madhya Pradesh, Gujarat, Andhra Pradesh, and some of Tamil Nadu. The black soil is quite deep in the higher reaches of the Godavari and Krishna rivers and the north-western part of the Deccan Plateau. Black soils are high in iron, lime, aluminium, magnesium, and potassium; however, this soil is poor in nitrogen, phosphorus, and organic matter. Cotton, pulses, millets, castor, tobacco, sugarcane, citrus fruits, linseed, and other crops are primarily grown in black soil.

32. Consider the following statements about Bamboo

1. Bamboos are fast-growing perennial plants
2. In India, bamboo is found naturally almost throughout the country except in the Kashmir region
3. Odisha and West Bengal account for more than 70% of the bamboo resources of the country

How many pairs given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) None

Ans: b (Only two)

**Statement 1 is correct:** Perennial Plants that persist for many growing seasons. Generally, the top portion of the plant dies back each winter and regrows the following spring from the same root system. Bamboo is the fastest-growing perennial plant on earth. Some species of bamboo can grow more than 1 meter per day, which is about 4 cm per hour. No other plant grows faster. Two examples of such fastgrowing bamboo are Madake (*Phyllostachys reticulata*) and Moso (*Phyllostachys edulis*).

**Statement 2 is correct:** Bamboo grows in the tropical, subtropical, and temperate regions of the world with an uneven distribution based on annual precipitation, altitude, soil conditions, and temperature. Bamboo is found naturally almost throughout the country except in the Kashmir region in India

**Statement 3 is incorrect:** The total bamboo-bearing area of the country has been estimated to be 15 million ha. The North Eastern states and West Bengal itself account for more than 50% of the bamboo resources in India. Madhya Pradesh has the maximum bamboo bearing area of 1.84 m ha Followed by Arunachal Pradesh's 1.57 m ha.

33. Consider the following statements

1. In India, Northeast Trade winds are essentially sea-bearing winds.
2. In India, Southwest Trade winds are essentially land-bearing winds

Which of the statements given above are correct?

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

Ans: d (Neither 1 nor 2)



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**Statement 1 is incorrect:** The cold weather season in India begins in mid-November in northern India and stays till February. During this season, the northeast trade winds prevail over the country. They blow from land to sea as land-bearing winds and hence, for most of the country, it is a dry season. Some amount of rainfall occurs on the Tamil Nadu coast from these winds, but from here they blow from sea to land by acting as sea bearing winds. Thus, Northeast Trade winds act both as sea bearing and land bearing winds.

**Statement 2 is incorrect:** The Monsoon season in India will advance by early June, as the low-pressure condition over the northern plains intensifies. It attracts the trade winds of the southern hemisphere. These southeast trade winds originate over the warm subtropical areas of the southern oceans. They cross the equator and blow in a south-westerly direction entering the Indian peninsula as the southwest monsoon. As these winds blow over warm oceans, they bring abundant moisture to the subcontinent by acting as sea-bearing winds (sea to land). These winds are strong and blow at an average velocity of 30 km per hour. Except for the extreme northwest, the monsoon winds cover the country for about a month.

34. Consider the following ocean currents

1. Labrador current
2. Kuroshio
3. Benguela current
4. Falkland current

How many of the above are cold ocean current?

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

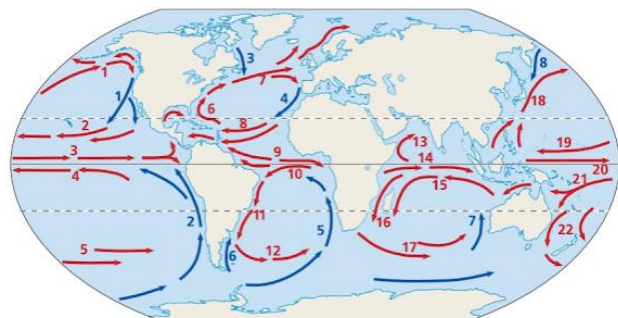
Ans: c (Only three)

**Statement 1 is correct:** Cold Ocean Currents bring cold water into warm water areas. These currents are usually found on the west coast of the continents in the low and middle latitudes in both the hemispheres and on the east coast in the higher latitudes in the Northern Hemisphere. The Labrador Current is the cold current flowing southward of the N. Atlantic sub-polar gyre. It transports cold waters into the warmer Gulf Stream ring and meander region.

**Statement 2 is incorrect:** The surface waters of the Kuroshio Current are warm and salty. This is because the Kuroshio starts in the tropics, where the westward flowing North Equatorial Current reaches the western boundary of the North Pacific.

**Statement 3 is correct:** Benguela Current is a Cold oceanic Current that is a branch of the west wind drift of the Southern Hemisphere. It flows northward in the South Atlantic Ocean along the west coast of southern Africa nearly to the Equator before merging with the westward-flowing Atlantic South Equatorial Current.

**Statement 4 is correct:** Falkland Current is the cold ocean current in the Southern Hemisphere, flowing northward in the South Atlantic Ocean along the east coast of Argentina to about latitude 30° to 40° S, where it is deflected eastward after meeting the southward-flowing Brazil Current.



1  
Cold currents

1. California Current
2. Humboldt Current
3. Labrador Current
4. Canaries Current
5. Benguela Current
6. Falkland Current
7. West Australian Current
8. Okhotsk Current

1  
Warm currents

1. North Pacific Drift
2. North Equatorial Current
3. Equatorial Countercurrent
4. South Equatorial Current
5. West Wind Drift
6. Gulf Stream
7. North Atlantic Drift
8. North Equatorial Current
9. Equatorial Countercurrent
10. South Equatorial Current
11. Brazil Current
12. West Wind Drift
13. Monsoon Current
14. Equatorial Countercurrent
15. South Equatorial Current
16. Mozambique Current
17. West Wind Drift
18. Japan Current
19. North Equatorial Current
20. Equatorial Countercurrent
21. South Equatorial Current
22. East Australian Current

35. Consider the following statements about Goldilocks zone

1. It is a habitable zone around a star where it is not too hot and not too cold for liquid water to exist
2. Venus and Mars are also part of the Goldilocks zone in our solar system.
3. The celestial bodies within the Goldilocks zone must have an atmosphere.

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) None

Ans: b (Only two)

**Statement 1 is correct:** The 'Goldilocks Zone,' or habitable zone, is the distance range with the right temperatures for water to remain liquid. The distance Earth orbits the Sun is just right for water to remain a liquid. This distance from the Sun is called the habitable or Goldilocks zone.

**Statement 2 is correct:** Venus and Mars are also considered to be a part of the goldilocks zones in our Solar system along with Earth, but they aren't currently habitable.

Today, Mars is a frigid desert. Many dried-up riverbeds, deltas, lake basins, and inland seas make it clear that Mars once had much water on its surface. Research suggests that most of Mars's water escaped into space as its atmosphere was stripped away by the sun's radiation. Today, aside from a possible series of briny, underground lakes and aquifers, most of Mars's water is locked up in the polar caps or ice buried below the surface.

Venus may have had a shallow liquid-water ocean and habitable surface temperatures for up to 2 billion years of its early history, according to computer modeling of the planet's ancient climate by scientists at NASA's Goddard Institute for Space Studies (GISS) in New York. Venus is closer to the sun than Earth and receives far more sunlight. As a result, the planet's early ocean evaporated, water-vapor molecules were broken apart by ultraviolet radiation, and hydrogen escaped to space. With no water left on the surface, carbon dioxide built up in the atmosphere, leading to a so-called runaway greenhouse effect that created present conditions.

**Statement 3 is incorrect:** The Goldilocks zone neither guarantees an atmosphere nor life on a planet. It is simply about liquid water. Since the sun, the moon and all those objects shining in the night sky, including the asteroids

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as well as meteorites which do not even have an atmosphere of their own, are considered celestial bodies, it is not mandatory that the celestial bodies within the Goldilocks zone must have an atmosphere.

36. Consider the following countries

1. Morocco
2. Niger
3. Zambia
4. Libya

How many of the above are part of Sahel region of Africa?

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

Ans: a (Only one)

**Explanation:** The Sahel is a semiarid region of western and north-central Africa extending from Senegal eastward to Sudan. It forms a transitional zone between the arid Sahara desert to the north and the belt of humid savannas to the south. The Sahel stretches from the Atlantic Ocean eastward through northern Senegal, southern Mauritania, the great bend of the Niger River in Mali, Burkina Faso (formerly Upper Volta), southern Niger, northeastern Nigeria, south-central Chad, and into Sudan



37. Consider the following statements about 'Steel Slag'

1. Its use in road construction increases its durability and reduces the cost of construction
2. Surat has become the first city in the country to get a road constructed with processed steel slag
3. It can be used to treat acidic water discharges from abandoned mines.
4. It is mainly recommended for its longevity as its lifespan is higher when compared to a concrete or cement road.

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** According to the Central Road Research Institute (CRRI), the construction cost of the processed steel slag road is 30 percent cheaper than roads built from natural aggregates. The thickness of the road is also 30 percent lesser than normal ones, while the durability is much longer due to the utilization of steel slag.



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**Statement 2 is correct:** Recently, Surat has become the first city in the country to get a processed steel slag (industrial waste) road built as part of a joint-venture project by the Council of Scientific and Industrial Research (CSIR), Central Road Research Institute (CRRI), Union Ministry of Steel, government think-tank NITI Aayog, and ArcelorMittal-Nippon Steel at Hazira.

**Statement 3 is correct:** Steel slag has found use as a barrier material remedy for waste sites where heavy metals tend to leach into the surrounding environment. Steel slag forces the heavy metals to drop out of the solution in water runoff because of its high oxide mineral content. Steel slag has been used successfully to treat acidic water discharges from abandoned mines.

**Statement 4 is incorrect:** Commonly, roads are constructed for civilian purposes using bitumen or cement (concrete). Processed steel slag can also be used in the construction of roads. The approximate construction cost per square meter of a processed steel slag road is Rs 1,150 against Rs 1,300 for a bitumen road and Rs 2,700 for cement or a concrete one. The lifespan of a cement or concrete road is over 30 years, while that of a bitumen and steel slag road is around 15 years. Hence the longevity of a processed steel slag road is not higher than that of a cement or a concrete road.

38. Consider the following statements about Minor minerals in India

1. It is the second largest extractive industry on the planet, after water.
2. Their regulatory and administrative powers to frame rules, prescribe rates of royalties, etc., are entrusted with both state and central government
3. Examples of minor minerals include sand, marble and dolomite
4. State governments have the power to include any mineral into minor minerals list

How many statements given above are correct?

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

Ans: b (Only two)

**Statement 1 is correct:** With the increase in development, the demand for minor minerals such as Sand and gravel has crossed 60 million metric tons in India. This also makes it the second largest extractive industry on the planet, after water

**Statement 2 is incorrect:** The regulatory and administrative jurisdiction of minor minerals falls exclusively under the purview of state governments, unlike those of major minerals. These include the powers to frame rules, prescribe rates of royalty, contribution to the District Mineral Foundation, the procedure for grant of mineral concessions etc.

**Statement 3 is correct:** The list of 31 minerals to be notified as minor minerals include Agate, Ball Clay, Barytes, Calcareous Sand, Calcite, Chalk, China Clay, Clay (Others), Corundum, Diaspore, Dolomite, Dunite/pyroxenite, Felsite, Felspar, Fireclay, Fuschite Quartzite, Gypsum, Jasper, Kaolin, Laterite, Limekankar, Mica, Ochre, Pyrophyllite, Quartz, Quartzite, Sand (Others), Shale, Silica Sand, Slate, and Steatite/Talc/Soapstone.

**Statement 4 is incorrect:** According to section 3(e) of the Mines and Minerals (Development and Regulation) Act, 1957, "Minor Minerals" means building stones, gravel, ordinary clay, ordinary Sand other than Sand used for prescribed purposes, and any other mineral which the Central Government may, by notification in the Official Gazette, declare to be a minor mineral. (For this Act, the word "minerals" includes all minerals except mineral oils-natural gas and petroleum)

39. Consider the following statements about vegetation in Himalayan ecosystem

1. Himalayas are devoid of deciduous forests



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- The vegetation cover of the southern slopes of the Himalayas is thicker than northern slopes
- Evergreen broad-leaf trees like oak and chestnut are predominantly found in the hilly areas of the western Himalayas.
- Namdapha national park has all types of vegetations located in Eastern Himalayas

How many statements given above are correct?

- Only one
- Only two
- Only three
- All four

Ans: b (Only two)

**Statement 1 is incorrect:** In Mountainous areas, the decrease in temperature with increasing altitude leads to a corresponding change in natural vegetation. Mountain forests can be classified into two types, the northern mountain forest and the southern mountain forest. The Himalayan ranges contain the northern mountain forests and show a succession of vegetation from the tropical to the Tundra, which changes with altitude. Deciduous forests are found on the foothills of the Himalayas.

**Statement 2 is correct:** The Southern slopes of the Himalayas carry a thicker vegetation cover because:

- In the Himalayas, the Southern slopes receive more rain due to the south west monsoon winds, which travel west along the southern slopes.
- Increase the amount of sunlight in the Southern slopes.

**Statement 3 is incorrect:** The Western Himalayan ecoregion is drier, and the forest is more fragmented than its Eastern Himalayan ecoregion. This is because the former receives less rainfall compared to the latter. The Eastern Himalayan broadleaf forests receive more moisture from the Bay of Bengal branch of the monsoon. Hence Evergreen broad-leaf trees like oak and chestnut are predominantly found in the hilly areas of the Eastern Himalayas.

**Statement 4 is correct:** Namdapha national park located in Arunachal Pradesh having all type of vegetations is part of Eastern Himalayan ecosystem.

40. Consider the following statements about the conditions necessary for recognition of a planet

- It must orbit a star
- It must be big to have enough gravity to force it into a spherical shape
- It should have enough gravity to clear away any other objects near its orbit around the star.
- It should not move away from the star

How many statements given above are correct?

- Only one
- Only two
- Only three
- All four

Ans: c (Only three)

**Explanation:** According to the International Astronomical Union in 2006, a planet must do three things to be defined as a planet.

- It must orbit a star (in our cosmic neighbourhood, the Sun).
- It must be big enough to have enough gravity to force it into a spherical shape.
- It must be big enough that its gravity cleared away any other objects of similar size near its orbit around the Sun.

Note: Every planet, including the earth, drifts away from its parent star so it is not mandatory that a planet should not move away from the star.





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### EXPLANATION

41. Consider the following statements about Milankovitch cycles

1. The eccentricity of the Earth changes over time due to the gravitational fields of the two largest planets in the Solar system vis Jupiter and Saturn
2. The increase in the tilt of the Earth's axis can lead to more extreme seasons on the earth.

Which of the statements given above are correct?

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

Ans: c (Both 1 and 2)

**Statement 1 is correct:** Milankovitch cycles include the shape of Earth's orbit (its eccentricity), the angle that Earth's axis is tilted concerning Earth's orbital plane (its obliquity), and the direction that Earth's spin axis is pointed (its precession). These cycles affect the amount of sunlight and, therefore, the energy that Earth absorbs from the Sun. The eccentricity of the Earth changes over time due to the gravitational fields of neighboring planets – Jupiter and Saturn. Over time, the pull of gravity from our solar system's two largest gas giant planets, Jupiter and Saturn, causes the shape of Earth's orbit to vary from nearly circular to slightly elliptical.

**Statement 2 is correct:** The increase in the tilt of the Earth's axis can lead to more extreme seasons on the earth. The greater Earth's axial tilt angle, the more extreme the seasons will become. Each hemisphere of the earth receives more solar radiation during summer when it is tilted toward the Sun and less during winter when it is tilted away.

42. Consider the creation of the following relief features

1. Himalayas
2. Eastern Ghats
3. Western Ghats
4. Aravali Ranges

Select the correct chronological order of creation of these features

- (a) 3-2-4-1
- (b) 3-2-1-4
- (c) 4-2-3-1
- (d) 4-3-2-1

Ans: c (4-2-3-1)

**Explanation:** The Aravali range is the oldest mountain range in India. The Aravalli range is the eroded stub of a range of ancient folded mountains. Aravalli Range is one of India's most popular mountain ranges, also known as Mewat hills

The Eastern Ghats are also known as Purva Ghat, Kizhakku Thodarchi Malai in the south. They are way older than the Western Ghats. The southern Eastern Ghats were the first to evolve, and the northern the last. This fact makes the Eastern Ghats much older than its western counterpart and perhaps the oldest in the land, except for the Aravallis, amongst the oldest on Earth.

The Himalayas are the youngest fold mountain range in the entire world. The Himalayas and the Northern Plains are the most recent landforms. The Himalayas' whole mountain system represents a youthful topography with high peaks, deep valleys and fast-flowing rivers.

43. Consider the following pairs about Celestial bodies and their definition

Celestial body	Definition
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Asteroid	Small rocky body that orbits the Sun
Meteor	Body that enters Earth's atmosphere and burns up
Meteorite	Body that hits the Earth's surface
Meteoride	Body made mostly of ice and dust

How many pairs given above are correctly matched?

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

Ans: c (Only three)

**Pair 1 is correctly matched:** There is a large gap between the orbits of Mars and Jupiter. This gap is occupied by a large number of small rocky objects that revolve around the Sun. These are called asteroids. Asteroids can only be seen through large telescopes. Asteroids are minor planets that cannot be classified as a planet or a comet. These are generally in the direct orbit around the Sun, also known as the inner solar system.

**Pair 2 is correctly matched:** A meteor is usually a small object that occasionally enters the Earth's atmosphere. At that time, it has a very high speed. The friction due to the atmosphere heats it up. It glows and evaporates quickly. That is why the bright streak lasts for a very short time

**Pair 3 is correctly matched:** Some meteors are large, so they can reach the Earth before they evaporate completely. The body that reaches the Earth is called a meteorite. Meteorites help scientists investigate the nature of the material from which the solar system was formed.

**Pair 4 is incorrectly matched:** Meteoroids are lumps of rock or iron that orbit the Sun, just as planets, asteroids, and comets do. Meteoroids, especially tiny particles called micrometeoroids, are extremely common throughout the solar system. They orbit the Sun among the rocky inner planets and the gas giants that make up the outer planets. Thus Meteoroids are not the body made mostly of ice and dust; it is Comet.

Comets are icy bodies of frozen gases, rocks and dust left over from the solar system's formation about 4.6 billion years ago. They revolve around the Sun in highly elliptical orbits. However, their period of revolution around the Sun is usually very long. A Comet generally appears as a bright head with a long tail. The length of the tail grows in size as it approaches the Sun. The tail of a comet is always directed away from the Sun.

44. Consider the following pairs about landforms and their agent/region

Landform	Agent/Region
Sill	Volcano
Arete	Glacier
Inselberg	Desert
Stalactite	Limestone

How many pairs given above are correctly matched?

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

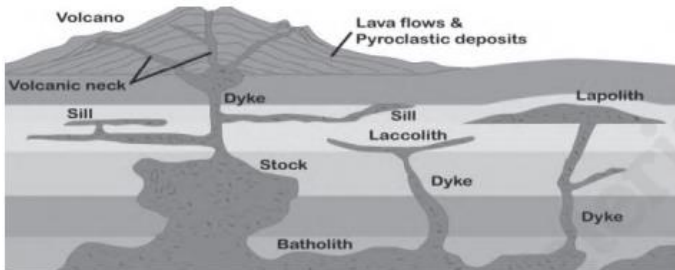
Ans: d (All four)

**Pair 1 is correctly matched:** Sill is a type of Volcanic Landform. The lava that is released during volcanic eruptions on cooling develops into igneous rocks. The cooling may take place either on reaching the surface or

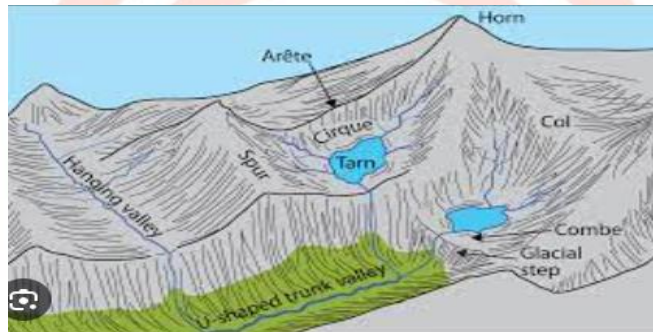
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also while the lava is still in the crustal portion. Depending on the location of the cooling of the lava, igneous rocks are classified as volcanic rocks (cooling at the surface) and plutonic rocks (cooling in the crust). The lava that cools within the crustal portions assumes different forms. These forms are called intrusive forms. The near horizontal bodies of the intrusive igneous rocks are called sill or sheet, depending on the thickness of the material. The thinner ones are called sheets, while the thick horizontal deposits are called sills.



**Pair 2 is correctly matched:** Arete is a type of Glacial landform. Horns form through headward erosion of the cirque walls. If three or more radiating glaciers cut headward until their cirques meet, high, sharp, pointed and steep-sided peaks called horns form. The divides between cirque side walls or head walls get narrow because of progressive erosion and turn into serrated or saw-toothed ridges, sometimes referred to as Aretes, with very sharp crests and a zig-zag outline.



**Pair 3 is correctly matched:** An inselberg is an isolated hill, ridge, or small mountain that abruptly protrudes out from a virtually level surrounding plain. The word inselberg translates to "Island Mountain" in German. A massive inselberg is referred to as a Bernhardt, which manifests as dome-topped, bare, and steep-sided. A Bernhardt mostly occurs in arid and semi-arid regions.



**Pair 4 is correctly matched:** Stalactite is a depositional landform. The most common stalactites are speleothems, which occur in limestone caves. Stalactites hang as icicles of different diameters. Normally they are broad at their bases and taper towards the free ends showing up in a variety of forms. Stalagmites rise up from the floor of the caves. In fact, stalagmites form due to dripping water from the surface or through the thin pipe, of the stalactite, immediately below it.



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### EXPLANATION



45. What will happen if the Earth's core cools down?

1. The convection mechanism within the earth stops
2. The Earth will lose its continental drift resulting in the absence of volcanic eruptions, earthquakes etc.
3. The magnetic field of Earth will disappear

Which of the statements given above are correct?

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

Ans: d (1, 2 and 3)

**Explanation:** Earth's geomagnetic field originates in the fluid outer core. Like boiling water on a stove, convective forces (which move heat from one place to another, usually through air or water) constantly churn the molten metals, which also swirl in whirlpools driven by Earth's rotation. As this roiling mass of metal moves around, it generates electrical currents hundreds of miles wide and flowing at thousands of miles per hour as Earth rotates. This mechanism, which is responsible for maintaining Earth's magnetic field, is known as the geodynamo. Cooling of the Earth's core leads to stopping the convection mechanism within the Earth and also leads to disappear the magnetic shield around the planet, which protects Earth from cosmic radiation. When the Earth has cooled completely, the movement in the mantle will also stop eventually. Then, the plates on the surface will no longer move, and Volcanoes will no longer erupt; the continents will stop drifting, clashing, and causing earthquakes. The magnetic field will disappear, and the planet will become similar to Mars.

46. Ninety East Ridge is an aseismic ridge approximately 5,000 kilometers in length and 200 km in width. In the context of this, Ninety East Ridge is located in which ocean?

- (a) Arctic Ocean
- (b) Antarctic Ocean
- (c) Pacific Ocean
- (d) Indian Ocean

Ans: d (Indian Ocean)

**Explanation:** The Ninety East Ridge is a ridge located on the floor of the Indian Ocean. The ridge stretches for 5,000 km and has an average width of 200 m, beginning in the Bay of Bengal and extending south to the South East Indian Ridge (SEIR). Additionally, the ridge extends further north for several more kilometers but is hidden below the sediments of the Bengal Fan. The northern segment of Ninety East Ridge is composed of a sequence of massive individual volcanoes, while the southern portion is tall and nearly continuous. The middle section of the ridge contains a mixture of small seamounts and straight segments. Geologists believe that the diverse features contained within the Ninety East Ridge are the result of its unique formation process. The Ninety East Ridge divides the Indian Ocean into the West Indian Ocean and the eastern Indian Ocean and also separates the Nicobar Fan from the Bengal Fan. The Ninety East Ridge is composed primarily of Ocean Island Tholeiites (OIT), which is a type of sub-alkaline basalt rock.



47. Which among the following statements best describes the term 'Critical Mineral'?

- (a) Mineral deposits with high economic value and less availability
- (b) Mineral deposits with high economic vulnerability and high global supply chain risk
- (c) Mineral deposits are radioactive and have a high associated risk in handling and storage
- (d) Mineral deposits that are dumped into the sea by developed countries cause high environmental risks

Ans: b (Mineral deposits with high economic vulnerability and high global supply chain risk)

**Explanation:** Critical minerals are the building blocks of essential modern-day technologies and are at risk of supply chain disruptions. These minerals are now used everywhere, from making mobile phones and computers to batteries, electric vehicles and green technologies like solar panels and wind turbines. Different countries create their lists based on their individual needs and strategic considerations. However, such lists mostly include graphite, lithium and cobalt, which are used for making EV batteries; rare earth, used for making magnets and silicon, a key mineral for making computer chips and solar panels. Aerospace, communications and defence industries also rely on several minerals used in manufacturing fighter jets, drones, radio sets and other critical equipment.

48. Which of the following forest has the highest carbon stock per hectare in India?

- (a) Tropical Wet Evergreen Forest
- (b) Montane Wet Temperate Forest
- (c) Tropical Throne Forest
- (d) Himalayan Dry Temperate Forests

Ans: d (Himalayan Dry Temperate Forest)

**Explanation:** Forest carbon stock is the amount of carbon that has been sequestered from the atmosphere and is now stored within the forest ecosystem in five pools — above-ground biomass (AGB), below-ground biomass (BGB), dead wood, litter and soil organic matter (SOC). The carbon stock in India's forests for 2019 has been estimated at 7,124.6 million tonnes, an increase of 42.6 million tonnes compared to the previous assessment's estimates. Arunachal Pradesh has maximum carbon stock of 1,023.84 million tonnes followed by Madhya Pradesh (609.25 million tonnes), Chhattisgarh (496.44 million tonnes) and Maharashtra (451.61 million tonnes). The per hectare carbon stock among different States/UTs indicates that Jammu Kashmir is contributing maximum per hectare carbon stock of 173.41 tonnes/ha, followed by Himachal Pradesh (167.10 tonnes/ha), Sikkim (166.24 tonnes/ha) and Andaman & Nicobar Islands (162.86 tonnes/ha). At national level 32% of carbon stock is in AGB whereas about 56% in SOC. Thus among the above given options Himalayan Dry Temperate Forest has the maximum carbon stock.

49. Consider the following statements about effects of soil erosion

1. Increase in Frequency and intensity of floods and drought
2. Increase in water holding capacity of Rivers
3. Lowering of Groundwater level



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### EXPLANATION

4. Uneven Nutrient distribution

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** Soil erosion is the displacement of the upper layer of soil (called topsoil). It is a naturally occurring process that affects all landforms. However, certain human activities greatly enhance this process and contribute to significant soil loss. The intensity of soil erosion has also increased due to increased landslides, floods and drought. Soil erosion decreases soil fertility, which can negatively affect crop yields. It also sends soil-laden water downstream, which can create heavy layers of sediment that prevent streams and rivers from flowing smoothly and can eventually lead to flooding. The fertile soil on the top most surface of the dry agricultural land is easily blown away by the wind, which causes soil erosion. So, scarcity of water during drought increases soil erosion.

**Statement 2 is incorrect:** The raindrops dispersed the soil and washed away into the nearby streams and rivers. Regions with very heavy and frequent rainfall face a large amount of soil loss. When topsoil has eroded, the loss of organic matter can alter the soil's physical properties, especially soil density. Higher clay content at the surface can reduce infiltration of topsoil reducing soil recharge, thus reducing water availability to the plants. The flowing water during floods also erodes a lot of soil by creating potholes, rock-cut basins, etc. Thus, erosion decreases the water holding capacity of the rivers.

**Statement 3 is correct:** Groundwater erosion is the process by which groundwater erodes part of the bedrock as it passes through. This is primarily due to carbonic acid in the groundwater, which forms when rainwater picks up carbon dioxide in the atmosphere as it falls. The soil erosion mechanisms affect how much water the soil can hold, how rapidly water flows over the soil and its movement below the surface. Soil erosion adversely hinders the growth of plants, agricultural yields, quality of water, and recreation

**Statement 4 is correct:** Soil erosion reduces the agricultural value of lands via physicochemical degradations. Soil nutrient loss through runoff and sediment is a major driver for soil fertility decline. The eroded sediments or soil are highly concentrated with crop nutrients, which are washed away from farmlands. Some conditions under which erosion can help distribute nutrients across a given area of land. The first condition under which this can occur is a condition of uneven soil nutrient distribution. In such a scenario, nutrients in the form of compost, mulch, or chemical fertilizer; are concentrated heavily in a defined area of land, while the concentration may be very low (relatively) in adjacent areas. A condition like this is unfavorable to the health of the soil and the optimal functioning of the entire ecosystem. Erosion can resolve the problem of uneven nutrient distribution when it occurs mildly or in a cyclic fashion.

50. Consider the following statements about Ocean Currents

- 1. Ocean currents are one of the factors that affect the temperature of ocean water.
- 2. The intensity of the ocean currents generally decreases with increasing depth.
- 3. Those currents which flow from equatorial regions toward the poles are called cold currents.
- 4. Ocean currents with higher speeds are called streams, and currents with lower speeds are called drift.

How many statements given above are correct?

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



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Ans: c (Only three)

**Statement 1 is correct:** Ocean currents are like river flow in oceans. They represent a regular volume of water in a definite path and direction. The factors which affect the distribution of temperature of ocean water are

- Latitude
- Unequal distribution of land and water
- Prevailing winds
- Ocean currents

Warm ocean currents raise the temperature in cold areas, while cold currents decrease the temperature in warm ocean areas. The Gulf stream (warm current) raises the temperature near the eastern coast of North America and the West Coast of Europe. In contrast, the Labrador current (cold current) lowers the temperature near the northeast coast of North America. All these factors influence the temperature of the ocean currents locally. The enclosed seas in the low latitudes record relatively higher temperatures than the open seas, whereas the enclosed ones in the high latitudes have lower temperatures than the open seas.

**Statement 2 is correct:** Warm Ocean currents raise the temperature in cold areas, while cold currents decrease the temperature in warm ocean areas. The Gulf stream (warm current) raises the temperature near the eastern coast of North America and the West Coast of Europe. In contrast, the Labrador current (cold current) lowers the temperature near the northeast coast of North America. All these factors influence the temperature of the ocean currents locally. The enclosed seas in the low latitudes record relatively higher temperatures than the open seas, whereas the enclosed ones in the high latitudes have lower temperatures than the open seas.

**Statement 3 is incorrect:** The warm ocean currents move from the equator to the poles, and the cold ocean currents move from the poles toward the equator. Cold currents decrease the temperature in warm areas, and warm currents raise the temperature in cold areas. Cold currents flow from the poles towards the equatorial regions. The Labrador currents are major cold currents.

**Statement 4 is correct:** Currents are referred to by their "drift." The currents are strongest near the surface and may attain speeds over five knots. At depths, currents are generally slow, with speeds of less than 0.5 knots. Usually, a current's speed is referred to as its "drift." Drift is measured in terms of knots. The strength of a current refers to the speed of the current. A fast current is considered strong. A current is usually strongest at the surface and decreases in strength (speed) with depth. Most currents have speeds less than or equal to 5 knots. Ocean currents (Average 3.2 km to 10 kmph) with higher speeds are called streams, and currents with lower speeds are called drifts.

51. Consider the following pairs about the crops and suitable soils

Crop	Best Suitable Soil
Cashewnut	Laterite soil
Wheat	Well-drained loamy soil
Millet	Sandy soil
Sugarcane	Red soil

How many pairs given above are correct?

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

Ans: c (Only three)

**Pair 1 is correctly matched:** Laterite has been derived from the Latin word 'Later,' which means brick. The laterite soils develop in areas with high temperatures and high rainfall. These are the result of intense leaching due to tropical rains. Red laterite soils in Tamil Nadu, Andhra Pradesh and Kerala are more suitable for tree crops like



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cashew nuts. Red sandy loam, lateritic soils and coastal sands with slightly acidic pH are best for cashew. Cashew is a tropical plant and can thrive even at high temperatures.

**Pair 2 is correctly matched:** Wheat can be grown in various soils, but well-drained, fertile loamy and clayey loamy soil is best suited for wheat cultivation. Plain areas are well suited for wheat production and grow in black and alluvial soil. They contain an adequate proportion of minerals like potash, phosphoric acid, and lime.

**Pair 3 is correctly matched:** Millets are also coarse grains and less sensitive to soil deficiencies. Millets are a group of highly variable small-seeded grasses. Jowar, bajra and ragi are important millets grown in India. Millets can be grown on less fertile and sandy soils, Red soils, and in an inferior alluvial or loamy soil.

**Pair 4 is incorrectly matched:** The laterite soils are commonly found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh and the hilly areas of Odisha and Assam. The crops which are generally grown are rice, millet, and sugarcane on lowland and tropical plantations such as rubber, coffee and tea on uplands.

52. Consider the following statements about Western disturbances

1. An increase in the prevailing night temperature indicates the arrival of the Western disturbance
2. Western disturbance is an area of low pressure.
3. Western disturbance enters India using the help of the Westerly jet stream.
4. These are best suited for Rabi crops in North Eastern India

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** The clouding associated with the WD leads to a rise in minimum temperature in North-Western parts of India. This is because of cloud cover associated with Western Disturbance. The cloud cover traps the outgoing long-wave radiation making nights warmer.

**Statement 2 is correct:** Western Disturbances are extra-tropical cyclones that form over the Caspian Sea or the Mediterranean Sea in the west. Western Disturbance is a low-pressure area that usually forms north of 20°N, causing changes in pressure, wind pattern and temperature fields. They usually occur with a cloudy sky, higher night temperatures and unusual rain.

**Statement 3 is correct:** A sub-Tropical Jet stream (STJ), also known as a Westerly Jet stream, is a narrow band of fast-moving air flowing from west to east. STJ in the northern hemisphere flows between 25° to 35° N in the upper troposphere at a height of about 12-14 km. Western Disturbance gradually travels across the middle-east from Iran, Afghanistan and Pakistan under the influence of subtropical westerly jet streams and causes rainfall in the winter season.

**Statement 4 is incorrect:** Western disturbances are well suited for Rabi crops in North-Western particularly for Wheat cultivation in Punjab, Haryana and some parts of Uttar Pradesh not in North-Eastern India

53. Consider the following statements about rainfall in India

1. India will get more rain when the temperature of the Arabian sea increases.
2. El Nino Modoki can lead to fewer cyclones over the Arabian sea.

Which of the statements given above are incorrect?

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





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Ans: b (Only 2)

**Statement 1 is correct:** Rapid warming in the Arabian Sea results in widespread extreme rains over the Western Ghats and central India since warming induces increased fluctuations in the monsoon winds, with ensuing episodes of enhanced moisture transport from the Arabian Sea towards the Indian subcontinent. The warming of the Arabian sea results from positive Indian Ocean dipole.

**Statement 2 is incorrect:** El Nino Modoki brings only fewer cyclones to the Bay of Bengal because one of the two descending limbs of the Walker Cell is over the western Pacific and Bay of Bengal. The descending limb causes dry conditions and is not conducive to cyclone formation. On the other hand, the ascending limb of the Walker Cell brings rain. Also, an El Nino Modoki creates stronger divergence over the western Pacific and Bay of Bengal compared to El Nino. Divergence (opposite of convergence) means surface winds move away from each other, resulting in low relative vorticity (rotational flow of winds). These conditions are not conducive for cyclones. This explains why the Bay of Bengal region has fewer cyclones during an El Nino Modoki.

54. With respect to the Cricket pitches, consider the following statements

1. With respect to the Cricket pitches, consider the following statements
2. Black soil has more elasticity, so it lasts for a longer time and supports fast bowling due to more bounce.
3. This is because red soil has less clay, and black soil has more clay.

Which of the statements given above are correct?

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

Ans: d (1, 2 and 3)

**Explanation:** For a suitable pitch, the clay content should be more than 50 percent, the sand content should be less than 5 percent, the fine sand should be less than 20 percent, the silt should be less than 20 percent, and the PH value should be between 630 and 730. Generally, Red soil has less clay content, and it will easily deteriorate the pitch due to more wear and tear of the pitch. More matches on Red soil expect the spinners to dominate the matches as it generally supports spin bowling. Ex: Pitches in Mumbai are of Red soil with low clay content. Red soil is mixed with yellow soil at various matches to increase the clay content. As compared to red soil, Black soil has more water-holding capacity. Black soil has more clay content and more elasticity, so it lasts for a longer time and mainly supports the fast bowlers to bounce the ball, whereas the Red soil has less clay content, and the matches last for a shorter time. For Example, Australian pitches are mostly of black soil containing 50 to 70 percent of clay content; thus, they get so much bounce on tracks.

55. Recently, two higher-magnitude earthquakes hit Turkey and Syria. Which of the following tectonic plates was responsible for those earthquakes?

1. Anatolian plate
2. African plate
3. Eurasian plate
4. Arabian plate

How many of the above statements given above are correct?

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

Ans: d (All four)

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**Explanation:** Tectonics in the Eastern Mediterranean region comprising Turkey, Syria and Jordan are dominated by complex interactions between the African, Arabian, and Eurasian tectonic plates and the Anatolian tectonic block. The earthquake, centered in Turkey's southeastern province of Kahramanmaraş, resulted from the grinding of the tectonic plates that the country sits on. Turkey lies at the intersection of the Anatolian, Arabian, Eurasian and African tectonic plates. Arabia is moving northwards into Europe, causing the Anatolian plate to be pushed out westwards. The quake was caused by the horizontal sliding of two plates, the Anatolian and Arabica plates, which resulted in the Anatolian plate moving towards the Southwest.



56. Consider the following statements

Statement I: Chota Nagpur plateau is rich in gold deposits.

Statement II: Chota Nagpur plateau is a part of old Gondwana land covered with Precambrian rocks rich in mineral deposits.

Which one of the following is correct in respect of the above statements?

- (a) Both statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Ans: d (Statement I is incorrect but Statement II is correct)

**Statement I is incorrect:** The Chota Nagpur Plateau in eastern India covers much of Jharkhand state and adjacent parts of Chhattisgarh, Odisha, West Bengal and Bihar. The Indo-Gangetic plain lies to the north and east of the plateau, and the basin of the Mahanadi river lies to the south. Chota Nagpur plateau is a storehouse of minerals and precious stones. Some important minerals include mica, bauxite, copper, limestone, iron ore, coal asbestos, chromite, and kyanite. Hutti in Raichur district is the biggest gold mine in India. In India, gold reserves and resources are concentrated in Karnataka and Rajasthan. Most of these reserves are located in Karnataka and account for 88% of the total; a further 12% are situated in Andhra Pradesh, and an insignificant amount (less than 0.1t) is found in Jharkhand.

**Statement II is correct:** Chota Nagpur is considered a mineral deposit because it is part of Gondwana land, which detached from the southern continent during the Cretaceous period. The Chota Nagpur Plateau is made of Precambrian rocks (i.e., rocks older than 540 million years). Chota Nagpur plateau is a storehouse of minerals and precious stones. Some important minerals include mica, bauxite, copper, limestone, iron ore, coal asbestos, chromite, and kyanite.

57. 'Nor Westers' is a local weather phenomenon related to which of the following states in India?

- (a) Assam



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- (b) Rajasthan
- (c) Punjab
- (d) Tamil Nadu

Ans: a (Assam)

**Explanation:** A sudden contact between dry and moist air masses gives rise to local storms of great intensity. These local storms are associated with violent winds, torrential rains and even hailstorms. Violent thunderstorms in the Gangetic plains of India are locally known as Kal Baisakhi or Nor'westers. These localized events are generally associated with thunderstorms accompanied by strong stormy winds and torrential rainfall. Nor Westers are dreaded evening thunderstorms in Bengal and Assam. Their notorious nature can be understood from the local nomenclature of 'Kalbaisakhi,' a calamity of the month of Baisakh. These showers are useful for tea, jute and rice cultivation. In Assam, these storms are known as "Bardoli Chheerha."

58. For which of the following crops does the Commission for Agricultural Costs & Prices (CACP) recommend minimum support prices to incentivize the farmers?

1. Paddy
2. Copra
3. Moong
4. Rubber
5. Raw Jute
6. Tomato
7. Cotton

Select the correct answer from the codes given below?

- (a) All the above except one
- (b) All the above except two
- (c) All the above except three
- (d) All the above except four

Ans: b (All the above except two)

**Explanation:** Commission for Agricultural Costs & Prices (CACP) recommends MSPs of 23 commodities, which comprise

- 7 cereals (paddy, wheat, maize, sorghum, pearl millet, barley and ragi)
- 5 pulses (gram, tur, moong, urad, lentil)
- 7 oilseeds (groundnut, rapeseed-mustard, soyabean, sesamum, sunflower, safflower, nigerseed)
- 4 commercial crops (copra, sugarcane, cotton and raw jute).

59. Consider the following statements about physiography of Antarctica

1. Antarctica is the continent with the highest mean elevation in the world.
2. The average elevation of the exposed land is less than the average depth of the ocean
3. Mount Vinson is the highest mountain in Antarctica
4. Mount Erebus, located on Ross Island, is the world's southernmost active volcano

How many statements given above are correct?

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

Ans: d (All four)



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**Statement 1 is correct:** Antarctica is a vast, unspoiled continent that has challenged explorers and inspired dreamers through the centuries. It is a place of beauty and mystery, covered with ice miles deep. Antarctica is the highest continent on Earth: average (mean) elevation is 8,200ft (2500m). The elevation at the South Pole is 9,300ft (2835m). The highest point on the icecap is in Australian Antarctic Territory at 13,451ft (4100m), at 82° 20'S, 56° 30'E.

**Statement 2 is correct:** The average depth of the ocean is about 3,688 meters (12,100 feet). The average elevation of the exposed land in Antarctica is 2,200meters (7,200 feet) above sea level.

**Statement 3 is correct:** Mount Vinson is the highest mountain in Antarctica at 16,050ft (4892m).

**Statement 4 is correct:** Mount Erebus, located on Ross Island, is the world's southernmost active volcano.

60. Consider the following statements about Metamorphic rocks

1. Metamorphic rocks are formed by the change of form of other rocks under the action of pressure, volume and temperature.
2. Fossils are most commonly found in metamorphic rock.
3. The process of lithification helps in the formation of metamorphic rocks

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) None

Ans: a (Only one)

**Statement 1 is correct:** The word metamorphic means a "change of form." These rocks form under the action of Pressure, volume and temperature changes. Metamorphism is a process by which already consolidated rocks undergo re-crystallization and reorganization of materials within the original rocks.

**Statement 2 is incorrect:** Sedimentary rocks are the most common rocks formed by the earth's natural forces like temperature, Pressure and heat. These rocks may contain fossils of plants, animals and other microorganisms that once lived on them. Because the pre-existing rocks (including sedimentary rocks) are subjected to high temperature and pressure, there is barely any chance for fossils to survive such extreme conditions to be found in metamorphic rocks.

**Statement 3 is incorrect:** Rocks (igneous, sedimentary and metamorphic) of the earth's surface are exposed to denudation agents and are broken up into various sizes of fragments. Such fragments are transported by different exogenous agencies and deposited. These deposits, through compaction, turn into rocks. This process is called lithification. In many sedimentary rocks, the layers of deposits retain their characteristics even after lithification. The process of lithification is not associated with metamorphic rocks.

61. Consider the following statements about Durg-Bastar-Chandrapur belt

1. Chhattisgarh and Maharashtra are part of this belt in India.
2. It is famous for high-quality hematite iron ore.
3. The belt has a tropical wet and dry climate.
4. Kudremukh iron ore mines in Karnataka are completely export oriented unit

How many statements given above are correct?

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

Ans: d (All four)



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**Statements 1 & 2 are correct:** Durg-Bastar-Chandrapur belt lies in Chhattisgarh and Maharashtra. Very high-grade hematites are found in the famous Bailadila range of hills in the Bastar district of Chhattisgarh. The range of hills comprises 14 deposits of super high-grade hematite iron ore. It has the best physical properties needed for steel making. Iron ore from these mines is exported to Japan and South Korea via Vishakhapatnam port.

**Statement 3 is correct:** A tropical wet and dry climate or the savannah climate is most common in the country and prevails mainly in the inland peninsular region of the country except for some portions of the Western Ghats. Durg-Bastar-Chandrapur belt lies in Chhattisgarh and Maharashtra, which has a tropical wet and dry climate.

**Statement 4 is correct:** Karnataka has large reserves of iron ore. The Kudremukh mines located in the Western Ghats of Karnataka are a 100 percent export unit. Kudremukh deposits are known to be one of the largest in the world. The ore is transported as slurry through a pipeline to a port near Mangalore

62. Consider the following statements about Purse Seine Fishing

1. It is non-targeted fishing
2. It catches all sorts of marine animals that come in the way of its net
3. It is banned in India
4. As it depletes marine resources, the Department of Fisheries has not recommended this type of fishing method.

How many statements given above are correct?

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

Ans: b (Only two)

**Statements 1 & 2 are correct:** Purse Seine Fishing involves a vertical net attached to a vessel is targeted at dense schools of fish in open water in curtain formation, the bottom of which is drawn together to enclose the fish. Purse seine is a non-targeted fishing gear that catches all sorts of fish in the way of the net, including juveniles. It is a non-selective fishing method that captures everything it surrounds, including protected species. Hence, they are very much detrimental to marine resources. The purse seine method is that it does not exploit other species since it focuses on shoaling fishes only.

**Statement 3 is incorrect:** Recently, an ongoing case in the Supreme Court on lifting the ban on purse seine fishing has been declared justified by revealing the fault lines between small, marginal, and large fishers. Currently, bans on purse seine fishing are implemented in the territorial waters of Tamil Nadu, Kerala, Puducherry, Odisha, Dadra and Nagar Haveli and Daman and Diu, and the Andaman and Nicobar Islands up to 12 nautical miles. States such as Gujarat, Andhra Pradesh, Goa, Karnataka, and West Bengal have not imposed any such ban. In contrast, Maharashtra has issued some orders to regulate but not ban purse seine fishing in its territorial waters. Therefore, Purse Seine Fishing is not banned all over India.

**Statement 4 is incorrect:** The Fisheries Department, under the Ministry of Fisheries, Animal Husbandry & Dairying, has recommended the lifting of the ban on purse seine fishing has not resulted in any serious resource depletion so far. Hence, it recommended purse seiners fish in territorial waters and the Indian Exclusive Economic Zone (EEZ) subject to certain conditions. Therefore, the Purse Seine Fishing mode does not cause serious depletion of marine resources.

63. Consider the following processes

1. Mountain building
2. Continent building
3. Weathering



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4. Volcano
5. Erosion

How many of the above processes fall under Diastrophism?

- (a) All the above except one
- (b) All the above except two
- (c) All the above except three
- (d) All the above except four

Ans: c (All the above except three)

**Explanation:** The energy emanating from within the earth is the main force behind endogenic geomorphic processes. This energy is mostly generated by radioactivity, rotational and tidal friction and primordial heat from the origin of the earth. This energy is mostly generated by radioactivity, rotational and tidal friction and primordial heat from the origin of the earth.

The endogenic forces and movements are divided, on the basis of intensity, into two major categories:

- Diatrophic forces
- Sudden forces

Diastrophism is all processes that move, elevate or build up portions of the earth's crust come under diastrophism. What differentiates diastrophism from sudden forces or movements is that while the former operates very slowly and their effects become discernible after thousands and millions of years, the latter cause sudden and rapid events that cause massive destructions at and below the earth's surface.

Diatrophic forces and movements include

- Orogenic processes involving mountain building through severe folding and affecting long and narrow belts of the earth's crust.
- Epeirogenic processes involve uplifting or warping large parts of the earth's crust.
- Earthquakes involving local relatively minor movements.
- Plate tectonics involves horizontal movements of crustal plates.

In the process of orogeny, the crust is severely deformed into folds. Due to epeirogeny, there may be simple deformation. Orogeny is a mountain-building process, whereas epeirogeny is a continental- building process. Through the processes of orogeny, epeirogeny, earthquakes and plate tectonics, the crust can be faulting and fracturing. All these processes cause pressure, volume and temperature (PVT) changes which in turn induce the metamorphism of rocks.

Volcanism is not a part of diastrophism as the movement of magma onto or towards the earth's surface and the formation of many intrusive and extrusive volcanic forms happen over a shorter timespan.

Weathering, Mass wasting or movements, Erosion and transportation are included in denudation, i.e., Exogenic geomorphic processes.

64. Consider the following statements

1. Earth has the highest albedo of any major planet in our solar system
2. Earth is the only planet in the solar system with a large number of ice caps that can reflect sunlight.

Which of the statements given above are correct?

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

Ans: b (Only 2)

**Statement 1 is incorrect:** Venus has the highest albedo of any major planet in our solar system. The albedo of Venus is close to 0.7, meaning it reflects about 70 percent of the sunlight striking it. The material on its surface and



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in its atmosphere determines a planet's albedo. The Earth's surface consists of 71 percent ocean and 29 percent land. Liquid water absorbs most of the sunlight falling upon it and reflects very little. The albedo of water, from light high in the sky (normal incidence), is low -- approximately 10 percent. The albedo of most land areas, such as soil or sand, is also relatively low, varying between 15 percent and 45 percent. The exception is snow, which is most frequently found at the poles of the Earth. Snow reflects the majority of the light that strikes it, leading to a high albedo of approximately 90 percent. Atmospheric clouds also play an important role in the albedo of Earth. Most clouds are made from water ice and have a high albedo. The planetary albedo of Earth, which is derived from the combined effect of the individual elements, stands at approximately 30 percent.

**Statement 2 is correct:** Earth has a significant amount of ice caps; it is not the only planet in the solar system to have them. In fact, both Mars and Venus have ice caps at their poles. However, Earth does have the largest amount of ice caps compared to the other inner planets (Mercury, Venus, and Mars) in the solar system. But looking at the position of the sun, Earth reflects more sunlight other than the planets in the solar system.

65. Consider the following statements about Sugarcane production

1. Sugarcane is a Kharif crop
2. It grows well in loamy soils with annual rainfall of 75-150 cm
3. The sucrose contents is higher in the tropical variety of sugarcane grown in the south India
4. India is the largest producer of Sugarcane in the world

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 & 2 are correct:** In India, sugarcane is grown as a Kharif crop. It requires a temperature range of 21-27 degrees celsius with an annual rainfall of 75-150 cm. Ideally, sugarcane can grow in rich loamy soil or any soil which can retain moisture.

**Statement 3 is correct:** The production of sugarcane per hectare is higher in Peninsular India. In fact, sugarcane crop grows well in the tropical climate of south India. The sucrose contents is higher in the tropical variety of sugarcane grown in the south.

**Statement 4 is incorrect:** Brazil the largest producer of Sugarcane in the world following by India.

66. Catalonia region recently seen in news is part of which of the following countries?

- (a) United Kingdom
- (b) Myanmar
- (c) Congo
- (d) Spain

Ans: d (Spain)

**Explanation:** The chief of Together with Catalonia, Carles Puigdemont, Catalonia's former regional president and a Member of the European Parliament (MEP), is the unlikely kingmaker who could break the country's political deadlock since the inconclusive elections in July. A fugitive from the Spanish justice system, now in self-imposed exile in Brussels, he faces six to 12 years in jail for an embezzlement charge linked to the failed Catalan referendum in October 2017 that was declared unconstitutional. Mr. Puigdemont has dangled the carrot of his seven seats in exchange for an amnesty for him and hundreds of others in connection with the secessionist agitation. The clemency legislation must be tabled in Parliament for Mr. Sanchez's investiture, but its approval is not a given.



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67. Consider the following statements about the International Criminal Court

1. It is established in 2002 based on Rome Statute
2. Its jurisdiction includes the crimes against humanity, war crimes and the crimes of aggression
3. It is the only international court with jurisdiction to prosecute individuals
4. It consists of 15 judges elected by the United Nations General Assembly

How many of the above statements are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** Established in 2002 pursuant to the multilateral Rome Statute, the ICC is considered by its proponents to be a major step toward justice, and an innovation in international law and human rights.

**Statements 2 & 3 are correct:** It is the first and only permanent international court with jurisdiction to prosecute individuals for the international crimes of genocide, crimes against humanity, war crimes and the crime of aggression.

**Statement 4 is incorrect:** It is not the International Criminal Court but International Court of Justice, a UN Principle organ has 15 judges elected by the UN General Assembly.

**Note:** India and China never signed nor acceded to the Rome statute. And Israel, USA, Russia and Sudan has withdrawn their consent to the Rome statute.

68. Consider the following statements about Niobium

1. Its chemical properties are similar to Tantalum
2. It is highly resistant to corrosion due to layer of oxides on its surface
3. It is used in Jet engines and rockets
4. It has high superconducting properties and hence used in MRI scanners

How many of the above statements are correct?

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

Ans: d (All four)

**Statement 1 is correct:** The name comes from Niobe from Greek mythology, who was the daughter of king Tantalus. This was chosen because of niobium's chemical properties are similar to tantalum.

**Statement 2 is correct:** A silvery metal that is very resistant to corrosion due to a layer of oxide on its surface.





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**Statement 3 is correct:** Niobium is used in alloys including stainless steel. It improves the strength of the alloys, particularly at low temperatures. Alloys containing niobium are used in jet engines and rockets, beams and girders for buildings and oil rigs, and oil and gas pipelines.

**Statement 4 is correct:** This element also has superconducting properties. It is used in superconducting magnets for particle accelerators, MRI scanners and NMR equipment. Niobium oxide compounds are added to glass to increase the refractive index, which allows corrective glasses to be made with thinner lenses

69. Consider the following pairs about different pardoning forms and their meaning

Form	Meaning
Respite	Stay of the execution of a sentence for temporary period
Reprieve	Awarding lesser sentence in place of originally award due to some special circumstances
Remission	Decreasing the period of sentence without changing its character
Commutation	Substituting a more severe form of punishment with lesser severe one

How many of the above pairs are correctly matched?

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

Ans: b (Only two)

**Pair 1 is incorrectly matched:** Respite: It denotes awarding a lesser sentence in place of one originally awarded due to some special fact, such as the physical disability of a convict or the pregnancy of a woman offender.

**Pair 2 is incorrectly matched:** Reprieve: It implies a stay of the execution of a sentence (especially that of death) for a temporary period.

**Pair 3 is correctly matched:** Remission means decreasing the period of the sentence without changing its character.

**Pair 4 is correctly matched:** Commutation implies substituting a more severe form of punishment with a less severe one.

70. Consider the following statements about the Employees Pension Scheme (EPS)

1. Both employer and employee contribute 12% of the employee's monthly salary
2. An employee must complete 10 years of service to become eligible to pension
3. Employees who are enrolled in Employee Provident Fund (EPF) will automatically enrolled in Employee Pension Scheme (EPS)

Which of the statements given above is/are correct?

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

Ans: d (1, 2 and 3)

**Statement 1 is correct:** The EPS, which is administered by the EPFO, aims to provide employees with pension after the age of 58. Both the employee and the employer contribute 12 per cent of the employee's basic salary and



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dearness allowance to the EPF. The employee's entire part goes to EPF, while the 12 per cent contribution made by the employer is split as 3.67 per cent contribution to EPF and 8.33 per cent contribution to EPS. Apart from this, the Government of India contributes 1.16 per cent as well for an employee's pension. Employees do not contribute to the pension scheme.

**Statement 2 is correct: Eligibility to avail of EPS benefits**

- Must be a member of the EPFO.
- Must have attained the age of 50 years for an early pension and 58 years for a regular pension.
- In case one defers the pension for 2 years (until you reach the age of 60 years), she will be eligible to receive the pension at an additional rate of 4% per year.
- Must have completed at least 10 years of service.

**Statement 3 is correct: Benefits of EPS:**

- One can withdraw the EPS once one attains the age of 50 years. However, the amount received will be at a reduced rate of interest.
- If the widower/widow remarries, the children will be classified as orphans and would receive the additional pension amount.
- Employees who are enrolled in the EPF scheme will automatically be enrolled in the EPS scheme.
- The minimum monthly pension amount that the individual will receive is Rs.1,000.

71. Consider the following statements about the PM Gati Shakti National Master Plan

1. It was launched in 2021 with the objective of integrated planning and implementation of Infrastructure projects
2. One of the objective of this programme is to make Indian products competitive globally
3. Network Planning Group serves as an approving authority for master plan and monitoring implementation of the programme.
4. Empowered Group of Secretaries is a platform for inter-ministerial consultation and coordination

How many of the above statements are correct?

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

Ans: b (Only two)

**Context:** The price of persistent federal friction

**Statement 1 is correct:** The government of India initiated the Pradhan Mantri Gati Shakti National Master Plan to transform the nation's infrastructure. On the occasion of the 75th independence day, Prime Minister Narendra Modi gave the green signal to the Gati Shakti Yojana, a huge project worth Rs 100 lakh crore, aimed at transforming the infrastructure landscape of India. This plan is supposed to lessen the time taken for infrastructure projects and upgrade India's competitiveness in the market.

**Statement 2 is correct:** Other objectives of this programme includes

- To provide easier interconnectivity and reduce travel time between road, rail, air, and waterways
- To improve industrial productivity
- To make local manufacturing globally competitive
- To facilitate future economic zones and
- To create employment

**Statement 3 is incorrect:** The Network Planning Group (NPG) operates under the PM GatiShakti initiative to facilitate strategic planning and decision-making processes related to network infrastructure development. It serves as an important institutional mechanism for inter-ministerial consultations and coordination



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**Statement 4 is incorrect:** An Empowered Group of Secretaries (EGoS) under the Chairmanship of Cabinet Secretary has been constituted for monitoring the Master Plan and for approving any changes in the Master Plan to meet any emerging requirements.

72. Consider the following statements about the Particularly Vulnerable Tribal Group (PVTG)

1. PVTG was created based on the recommendations of Dhebar commission.
2. Pre-agriculture system of existence was one of the criteria for declaration of PVTG
3. There are 75 groups in this list and Maram tribe was the recently added tribe
4. Madhya Pradesh has highest number of tribes under PVTG category

How many statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** The Dhebar Commission (1960-1961) found that within the Scheduled Tribe classification an inequality existed in the rate of development of certain tribes over others. As a result in the fourth Five Year Plan the sub-category "Primitive tribal group" was created within the grouping of Scheduled Tribe to identify groups considered to be especially lacking in modern development.

**Statement 2 is correct:** The features of such a group include a pre-agricultural system of existence, that is practice of hunting and gathering, zero or negative population growth, and extremely low levels of literacy in comparison with other tribal groups.

**Statement 3 is correct:** Total 75 groups were identified as Primitive Tribal Group. The 75th group recognised as PTG were the Maram in Manipur in 1993-94. No new group was declared as PTG on the basis of the 2001 census.

**Statement 4 is incorrect:** Orissa has highest number of PVTG tribes in the list followed by Andhra Pradesh and Madhya Pradesh.

73. What is the theme of 2<sup>nd</sup> Voice of Global South Summit held recently?

- (a) Voice of Global South- for Human Centric Development
- (b) Together, for Everyone's Growth, with Everyone's Trust
- (c) One Earth, One Family, One Future
- (d) Together for our Planet

Ans: b (Together, for Everyone's Growth, with Everyone's Trust)

**Explanation:** The second VOGSS will feature an extensive schedule, beginning with an inaugural session led by Prime Minister Narendra Modi. This session, themed "Together, for Everyone's Growth, with Everyone's Trust", underscores the collective effort and trust necessary for global development. The inaugural summit, held earlier this year, set a precedent for comprehensive dialogue among 125 countries from the Global South. Focused on 'Unity of Voice, Unity of Purpose', it successfully influenced the agenda of India's G20 Presidency, indicating the potential impact of the upcoming summit.

74. Consider the following statements about the Indo-Pacific Regional Dialogue (IPRD)

1. It is an bi-annual summit organised jointly by Indian Navy and National Maritime Foundation
2. The major objective is to review the current geopolitics in the Indo-Pacific region
3. The theme for 2023 edition is 'Maintaining a Rule based, safe, and secure Indo-Pacific'

Which of the statements given above is/are incorrect?

- (a) 1 and 2 only



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(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

Ans: b (1 and 3 only)

**Statement 1 is incorrect:** IPRD is an apex level international annual conference of the Indian Navy. In 2018, the initial conception of an IPRD was made. With the exception of 2020, when it had to be postponed owing to the Covid-19, the event has been hosted annually since its initial year in 2018. It is jointly hosted by India Navy and National Maritime Organisation (a think tank of Indian Navy)

**Statement 2 is correct:** The IPRD reviews the current geopolitics in the Indo-Pacific region and identifies opportunities, dangers, and problems that might be present. IPRD remains crucial to its interests because one of the main goals of the National Maritime Foundation(NMF) is to conduct analyses of international relations and geopolitical factors that are important to India strategically.

**Statement 3 is incorrect:** The three-day long Indo-Pacific Regional Dialogue 2023 (IPRD-2023) concluded today in New Delhi. This is annual apex-level regional strategic dialogue of the Indian Navy. This session is engaged globally renowned experts from India and abroad, senior officers from the Indian Armed Forces and the Government of India, scholars and the public-at-large in intensive deliberations in several sub-topics under the overarching theme of “Geopolitical Impacts upon Indo-Pacific Maritime Trade and Connectivity”.

75. Consider the following pairs about the ports that are part of India-Middle East-Europe Economic Corridor (IMEC)

Port	Country/Location
Kandla port	India
Fujairah port	Saudi Arabia
Haifa port	Israel
Piraeus port	Greece

How many pairs are correctly matched?

(a) Only one

(b) Only two

(c) Only three

(d) All four

Ans: c (Only three)

**Explanation:** Going into the details of the corridor, Finance Minister said IMEC begins with what we might call the Eastern Corridor, which is predominantly maritime in nature. This will connect Indian ports such as Mundra and Kandla in Gujarat, with West Asian ones such as Fujairah, Jebel Ali, and Abu Dhabi in the UAE, and Saudi Arabian ports of Dammam, Ras Al Khair, and Ghuwaifat. Then there is a rail segment that will continue the IMEC and provide connection to the Saudi Arabian cities of Haradh and Al Haditha, onward to the port of Haifa in Israel, Ms. Sitharaman said.

The final segment, which some call the Northern Corridor, will once again be a maritime segment connecting the port of Haifa to the Greek port of Piraeus and thence to Europe, she stated. “Thus, the IMEC will create a reliable and cost-effective cross-border, ship-to-rail transit network to supplement existing maritime and road transport, and facilitate trade and connectivity, leading to the economic integration of South Asia, West Asia, Europe, and the Middle East.”

### EXPLANATION

#### Corridor trajectory



India-Middle East-EU corridor to have multiple routes, but hurdles remain -...

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76. Which of the following countries shares border with Rwanda?

1. Kenya
2. Uganda
3. Democratic Republic of Congo
4. Burundi
5. Tanzania

How many of the above statements given above are correct?

- (a) All the above except one
- (b) All the above except two
- (c) All the above except three
- (d) All the above except four

Ans: a (All the above except one)

**Explanation:** Rwanda shares borders with the following countries

North: Uganda

South: Burundi

East: Tanzania

West: Democratic Republic of Congo



77. Consider the following statements about Coal

1. Peat has the highest moisture content of all coal types
2. Bituminous has the highest carbon content of all coal types
3. Odisha is the largest coal producing state in India
4. Vindhyachal Thermal Power Station is the largest thermal power plant in India

How many of the statements given above are correct?

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



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Ans: c (Only three)

**Statement 1 is correct:** Peat is a soft, crumbly, dark brown substance that is formed from generations of dead and partially decaying organic matter. Peat is the first step in the formation of coal, and slowly becomes lignite after pressure and temperature increase as sediment is piled on top of the partially decaying organic matter. In order to be turned into coal, the peat must be buried from 4-10 km deep by sediment. Peat exhibits the lowest carbon content (less than 60%) and has an energy density of 15 MJ/kg and its moisture content is about 75%.

**Statement 2 is incorrect:** Bituminous coal is the second highest quality of coal, with a carbon content that ranges from 76-86%. It is the most abundant type, and one of the longest buried fossil fuels—with an age of approximately 300 million years old. Therefore, its energy density is relatively high at 27 MJ/kg. The high carbon and low moisture content of this particular type of coal makes it ideal in the production of steel and cement, as well as in electricity generation and coke production.

**Statement 3 is correct:** As per the Ministry of Coal, Odisha has the highest reserves of coal in India followed by Jharkhand and Chattisgarh

**Statement 4 is correct:** The Vindhyachal Thermal Power Station is located in Singrauli district in the Indian state of Madhya Pradesh. One of the coal-fired power stations of NTPC, it is the largest power station in India, and the 9th largest coal-fired power station in the world, with an installed capacity of 4,760 MW.

78. Consider the following statements about the Electoral Bonds Scheme (EBS)

1. The Electoral bonds can be sold in multiple of Rs 1,000, Rs. 10,000, Rs. 1 lakh and Rs. 10 lakh only
2. There is no cap on the number of bonds that a person/company can purchase
3. Companies are allowed to contribute only 7.5% of their net average profits to political parties as political funds
4. All political parties are allowed to receive donations under the EBS scheme

How many of the above statements are correct?

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

Ans: a (Only one)

**Statement 1 is incorrect:** Electoral bonds are interest-free bearer bonds or money instruments that can be purchased by companies and individuals in India from authorised branches of the State Bank of India (SBI). These bonds are sold in multiples of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore. They can be purchased through a KYC-compliant account to make donations to a political party.

**Statement 2 is correct:** There is no cap on the number of electoral bonds that a person or company can purchase.

**Statement 3 is incorrect:** As per Companies Act 2013, a company can make a political contribution only if its net average profit of three preceding financial years is at 7.5%. The removal of this clause has raised concerns of black money in political funding through shell companies.

**Statement 4 is incorrect:** Political parties that secured at least 1% of the votes polled in the recent Lok Sabha or State Assembly elections and are registered under the RPA can get a verified account from the Election Commission of India (ECI). The bond amounts are deposited in this account within 15 days of their purchase.

79. Consider the following statements about the Public Interest Litigation (PIL)

1. The principle of Locus Standi will not apply to the petitions filed as PIL
2. P.N Bhagwati, the 17<sup>th</sup> Chief Justice of India introduced the PIL into Indian judicial system
3. Kapila Hingorani was considered as a “Mother of Public Interest Litigation”
4. Article 39A, promotes the concept of PIL to ensure justice to all residents of India



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How many of the statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** The liberal interpretation of locus standi where any person can apply to the court on behalf of those who are economically or physically unable to come before it has helped. Judges themselves have in some cases initiated suo moto action based on newspaper articles or letters received.

**Statement 2 is correct:** Prafullachandra Natwarlal Bhagwati was the 17th Chief Justice of India. He introduced the concepts of public interest litigation and absolute liability in India, and for this reason is held, along with Justice V. R. Krishna Iyer, to be a pioneer of judicial activism in the country. He is the longest-served Supreme Court judge (including Chief Justice to tenure) in India.

**Statement 3 is correct:** Pushpa Kapila Hingorani was an Indian lawyer who is regarded as "Mother of Public Interest Litigation" (PIL). As per the prevailing laws, a petition could be filed only by a victim or a relative. Kapila and her husband Nirmal Hingorani wanted to represent the undertrial prisoners in Bihar. The couple acting on a novel idea, filed a habeas corpus petition on the prisoners' behalf before the Supreme Court of India. Two weeks after Kapila argued the case in court, the Supreme Court issued a notice to the Bihar government, which led to the release of all the victims in the case, and eventually about 40,000 undertrials across the country. The landmark case came to be known as the Hussainara Khatoon case 1979.

**Statement 4 is incorrect:** Article 39A promotes the concept of PIL but however it is available to only Indian citizen not all ordinary residents of India.

80. Which of the following committees have recommended the State Funding of Elections?

- 1. Indrajit Gupta Committee: 1998
- 2. Law commission report: 1999
- 3. Second Administrative Reforms Commission: 2008
- 4. National Commission to Review the Working of the Constitution: 2001

How many of the statements given above are correct?

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

Ans: c (Only three)

**Statement 1 is correct:** The Indrajit Gupta Committee (1998) endorsed state funding of elections, seeing "full justification constitutional, legal as well as on ground of public interest" in order to establish a fair playing field for parties with less money. The Committee recommended two limitations to state funding. Firstly, that state funds should be given only to national and state parties allotted a symbol and not to independent candidates. Secondly, that in the short-term state funding should only be given in kind, in the form of certain facilities to the recognised political parties and their candidates. The Committee noted that at the time of the report the economic situation of the country only suited partial and not full state funding of elections

**Statement 2 is correct:** The 1999 Law Commission of India report concluded that total state funding of elections is "desirable" so long as political parties are prohibited from taking funds from other sources. The Commission concurred with the Indrajit Gupta Committee that only partial state funding was possible given the economic conditions of the country at that time. Additionally, it strongly recommended that the appropriate regulatory framework be put in place with regard to political parties (provisions ensuring internal democracy, internal



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structures and maintenance of accounts, their auditing and submission to Election Commission) before state funding of elections is attempted.

**Statement 3 is correct:** Second Administrative Reforms Commission (2008) also recommended partial state funding of elections for the purpose of reducing “illegitimate and unnecessary funding” of elections expenses.

**Statement 4 is incorrect:** The National Commission to Review the Working of the Constitution, 2001, did not endorse state funding of elections but concurred with the 1999 Law Commission report that the appropriate framework for regulation of political parties would need to be implemented before state funding is considered.

81. Consider the following statements about the Sub-Categorisation of Scheduled Castes (SCs)

1. Justice Usha Mehta committee was the first committee appointed to look into sub-categorisation of SCs
2. Parliament alone has the power to include or exclude any castes from SCs list
3. National Commission for Scheduled Castes is a constitutional body setup under Article 338

Which of the statements given above is/are correct?

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

Ans: d (1, 2 and 3)

**Statement 1 is correct:** The Ministry of Social Justice & Empowerment examined the matter and sought the views of the Ministry of Law & Justice on 28.03.2005. The Law Ministry obtained the opinion of the Attorney General for India (AGI) in the light of the Supreme Court's judgment. The AGI opined that any such classification must be based on unimpeachable evidence to indicate a necessity for such a classification and that the classification of Scheduled Castes is not fraught with dangers. AGI also opined that suitable constitutional amendments can be brought in to effectuate the guarantee of equality. In the light of AGI's opinion, and with the approval of the Cabinet Committee on Political Affairs (CCPA), set up a National Commission for Sub-Categorization of Scheduled Castes of Andhra Pradesh headed by Justice Usha Mehra, a retired Judge of Delhi High Court. The NCSCSC submitted its report in May, 2008. The NCSCSC recommended for insertion of a new Clause (3) in Article 341 of the Constitution as under: "341(3) Parliament may by law provide for sub-categorization or de sub-categorization of caste, race or tribe or part of or group within any caste, race or tribe specified in a notification issued under clause (1) or by law made by parliament under clause (2), upon receiving a resolution from legislature of a State/ U.T passed unanimously."

**Statement 2 is correct:** Supreme Court in 2004, held that the State did not have the power to unilaterally sub-categorise communities in the list of SCs or Scheduled Tribes (STs). The Constitution has provided that these lists can only be made by Parliament and notified by the President.

Article 341 (2): Parliament may by law include in or exclude from the list of Scheduled Castes specified in a notification issued under clause (1) any caste, race or tribe or part of or group within any caste, race or tribe, but save as aforesaid a notification issued under the said clause shall not be varied by any subsequent notification.

**Statement 3 is correct:** The National Commission for Scheduled Castes is an Indian constitutional body under the jurisdiction of Ministry of Social Justice and Empowerment, Government of India established with a view to provide safeguards against the exploitation of Scheduled Castes and Anglo Indian communities to promote and protect their social, educational, economic and cultural interests, special provisions were made in the Constitution. Article 338 of the Indian constitution deals with National Commission for Scheduled Castes. Article 338 A deals with National Commission for Scheduled tribes.

82. 'Fentanyl' recently seen in news is a?

- (a) New Vaccine for Chickengunya





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- (b) New Vaccine for Malaria
- (c) Synthetic opioid to treat HIV/AIDs
- (d) Synthetic Opioid to treat Cancer

Ans: d (Synthetic Opioid to treat Cancer)

**Explanation:** Pharmaceutical fentanyl is a synthetic opioid approved for treating severe pain, typically advanced cancer pain. It is 50 to 100 times more potent than morphine. It is prescribed in the form of transdermal patches or lozenges and can be diverted for misuse and abuse in the United States.

However, most recent cases of fentanyl-related harm, overdose, and death in the U.S. are linked to illegally made fentanyl. It is sold through illegal drug markets for its heroin-like effect. It is often mixed with heroin and/or cocaine as a combination product—with or without the user's knowledge—to increase its euphoric effects.

Rates of overdose deaths involving synthetic opioids other than methadone, which includes fentanyl and fentanyl analogs, increased over 22% from 2020 to 2021. The rate of overdose deaths involving synthetic opioids in 2021 was nearly 22 times the rate in 2013. Nearly 71,000 drug overdose deaths involved synthetic opioids other than methadone in 2021. The latest provisional drug overdose death counts suggest overdose deaths accelerated during the COVID-19 pandemic.

83. 'Ixchiq' recently seen in news is a?

- (a) Vaccine for Malaria
- (b) Vaccine for Chickengunya
- (c) Vaccine for Cervical cancer
- (d) Vaccine for Dengue

Ans: b (Vaccine for Chickengunya)

**Explanation:** On November 9, the world's first vaccine for chikungunya was approved by the Food and Drug Administration (FDA) in the U.S. The vaccine has been developed by European vaccine manufacturer Valneva and will be available under the brand Ixchiq, and has been approved for administration in people who are 18 years or older, and are at increased risk of exposure to the virus. It was approved using the Accelerated Approval pathway, which allows the FDA to clear certain products for serious or life-threatening conditions based on evidence of a product's effectiveness that is likely to provide clinical benefit.

84. Consider the following countries about the members of Asia-Pacific Economic Cooperation (APEC)

1. India
2. China
3. Taiwan
4. USA
5. Russia
6. Peru

How many statements given above are correct?

- (a) All the above except one
- (b) All the above except two
- (c) All the above except three
- (d) All the above except four

Ans: a (All the above except one)

**Explanation:** Asia-Pacific Economic Cooperation is an inter-governmental forum for 21 member economies in the Pacific Rim that promotes free trade throughout the Asia-Pacific region. Following the success of ASEAN's series of post-ministerial conferences launched in the mid-1980s, APEC started in 1989, in response to the growing interdependence of Asia-Pacific economies and the advent of regional trade blocs in other parts of the world; it



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aimed to establish new markets for agricultural products and raw materials beyond Europe. Headquartered in Singapore, APEC is recognized as one of the highest-level multilateral blocs and oldest forums in the Asia-Pacific region, and exerts significant global influence.

Member countries:

Member economy(s) ↕	Name as used in APEC ↕	Date of accession ↕
Australia	Australia	November 1989
Brunei	Brunei Darussalam	November 1989
Canada	Canada	November 1989
Indonesia	Indonesia	November 1989
Japan	Japan	November 1989
South Korea	Republic of Korea	November 1989
Malaysia	Malaysia	November 1989
New Zealand	New Zealand	November 1989
Philippines	The Philippines	November 1989
Singapore	Singapore	November 1989
Thailand	Thailand	November 1989
United States	The United States	November 1989
Taiwan	Chinese Taipei <sup>[a]</sup>	November 1991
Hong Kong	Hong Kong, China <sup>[b]</sup>	November 1991
China	People's Republic of China	November 1991
Mexico	Mexico	November 1993
Papua New Guinea	Papua New Guinea	November 1993
Chile	Chile	November 1994
Peru	Peru	November 1998
Russia	Russia	November 1998
Vietnam	Viet Nam	November 1998

85. Consider the following statements about the conditions to recognise any party as National Political Party.

1. Secure at least 6% of valid votes polled and 2 members to the house of the people
2. 2% of total number of seats in the House of the People from not less than 3 states
3. Recognised as state party in at least four states
4. At least 1 MP for every 25 Lok Sabha constituencies

How many of the above statements are correct?

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

Ans: b (Only two)

**Statement 1 is incorrect:** The candidates set up by the party, in any four or more States, at the last general election to the House of the People, or to the Legislative Assembly of the State concerned, have secured not less than six percent of the total valid votes polled in each of those States at that general election; and, in addition, it has returned at least four members to the House of the People at the aforesaid last general election from any State or States; or



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**Statement 2 is correct:** At the last general election to the House of the People, the party has won at least two percent of the total number of seats in the House of the People, any fraction exceeding half being counted as one; and the party's candidates have been elected to that House from not less than three States; or

**Statement 3 is correct:** The party is recognised as state party in at least four states

**Statement 4 is incorrect:** This condition is to recognise a party as state party: At the last general election to the House of the People from the State, the party has returned at least one member to the House of the People for every 25 members or any fraction thereof allotted to that State.

#### Directions (86-89)

It is 2030 and a Chinese university lecturer is explaining how a decadent America went the way of the British and Roman empires. Ruinous economic policies led to crippling debt, much of it owned by China. "Now they work for us," he says with a smirk, to prolonged sniggers from his students.

This depiction of the future comes from a television advertisement attacking Barack Obama's policies, during America's election campaign, Mr. Obama himself seems haunted by similar fears. He often gives warning that China and other developing countries are beating America in the race for the "jobs of the future".

The belief the America is losing its economic edge is pervasive. Americans are more pessimistic about their country's prospects than at any point since Gallup, a polling firm, first started asking them in 1959. The grandees of Washington, DC, share their concern. Almost any weekday morning at one of the city's many think-tanks a America packed audience of academics, journalists and government officials can be found agonizing over the country's waning competitiveness. The recession may gradually be receding, the worry goes, but long-ignored impediments to growth will hobble the recovery and prevent future generations from achieving the American dream.

Outsiders are anxious too. The World Economic Forum, which draws up international rankings on competitiveness, considers the United States only the world's seventh fittest economy, a big slide from the first place, just four years ago. It faults America's infrastructure its primary education and healthcare, its institutions and above all its macroeconomic environment. The only category in which the country still ranks first is market size, a slot it is destined to lose to China sooner or later.

The misgivings are easy to understand. Growth is sluggish, unemployment is high and investors are wary. America's public debt is approaching \$17 trillion, more than 100% of GDP. Much of this stems from the transitory effects of the recession, but it will get worse rather than better. On the current trajectory, the soaring costs of Medicare and Medicaid - the government's healthcare schemes, along with social security, the state pension scheme, will consume all federal revenues within a generation, leaving nothing for anything else.

America's politicians have been feckless in the face of this impending disaster. All the bickering over budgets of the past two years had done little to diminish this soon to be crushing burden. Whenever either party suggests trimming "entitlements", the other immediately accuses it of betraying the poor or the elderly. Republicans and Democrats are so much at odds that decisions are only ever made at the 11th hour and in an ill-considered and piecemeal fashion. Words like "shut down" and "default" have become part of Washington's everyday language.

86. The American politicians have been 'feckless in the face'. What can be inferred from this?

- (a) They are vituperative about the current state of affairs
- (b) They are freckle-faced
- (c) They are weak and irresponsible
- (d) They are scornful

Answer: C



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87. The politicians don't see eye to eye on anything, they debate on budgets, and 'trimming entitlements' remain a bone of contention between them. How can these facts be perceived in the present economic scenario?

- (a) The political gridlock is hobbling America's economy
- (b) The politicians form an infallible framework of support for the old and the needy
- (c) The fund for entitlements is planned to be whisked away by politicians
- (d) America has a strong economy and hence trimming entitlements is completely asinine

Answer: A

88. The mundane US vocabulary includes the words 'shutdown' and 'default'. What is the contextual meaning of 'default' according to the passage?

- (a) The Americans are left with no choice other than being sluggish in the present situation
- (b) The US economy is rumbling under unpaid debts
- (c) The US government, by default, is engineered to face challenges
- (d) America is cowering due to the lack of its natural competitiveness

Answer: B

89. America's future is envisioned to follow that of the Roman empire. Select the best reason, for this from among the options given below

- (a) China's emergence as an economic giant towering over the once prominent America
- (b) Barack Obama's election promises and policies are indicated after his swearing in as the US President
- (c) America's languid response to economic recession
- (d) A combination of ludicrous political arguments, clumsy economic policies, unemployment and waning competitiveness

Answer: D

90. It is a popular misconception that nuclear fusion power is free of radioactivity; in fact the deuterium-tritium reaction that nuclear scientists are currently exploring, produces both alpha particles and neutrons.

Which of the following can be inferred from the above?

- (a) Nuclear fusion does not involve production of alpha particles and neutrons.
- (b) Production of alpha particles and neutrons constitutes radioactivity.
- (c) Nuclear fusion does not result in radioactivity.
- (d) The deuterium-tritium reaction is an example of nuclear fission.

Answer: B

### Directions (91-94)

In a mini library there are four shelves. Each shelf contains books of a different subject among physics, chemistry, maths and biology. Each shelf contains a different even number of books. None of the shelves is empty. A confused librarian misplaced these books. The following is known about the books in different shelves.

1. All the shelves together have 24 books, out of which half are misplaced.
2. The number of books in Chemistry shelf is twice that of the number of books in Physics shelf.
3. The books of any specific subject are placed in a maximum of two shelves.
4. Each shelf has the same number of books as it initially had.
5. Two third of books in maths shelf should have been in biology shelf.
6. All but two books which are now in maths shelf do not belong to that shelf.
7. A maximum of half the physics books are misplaced by the librarian.

91. How many chemistry books are kept in biology shelf?



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- (a) 4
- (b) 2
- (c) 3
- (d) 1

Answer: A

92. How many physics books are correctly kept in its original shelf?

- (a) 1
- (b) 2
- (c) 0
- (d) 4

Answer: B

93. How many biology books are in maths shelf?

- (a) 2
- (b) 4
- (c) 6
- (d) 5

Answer: B

94. The books in which shelf are not misplaced at all?

- (a) Physics
- (b) Maths
- (c) Chemistry
- (d) Biology

Answer: A

**Directions for questions 95 to 99:** These questions are based on the following information.

A boy has to select 4 keys from three boxes A, B and C. It is known that Box A contains keys P, Q and R, Box B contains keys S, T and U and Box C contains keys X, Y and Z. The boy must select at least one key from each box. Further, it is known that,

- (i) If a key from box A is selected, then only one key from box C is to be selected.
- (ii) If T is selected, then neither R nor Z is to be selected.
- (iii) Z and R cannot be selected together. Q and S must be selected together.
- (iv) Y cannot be selected unless U is selected.
- (v) If P is selected, then X must not be selected.

95. Which among the following cannot be selected if R is selected?

- (a) Q
- (b) S
- (c) U
- (d) None of these

Answer: D

96. Which among the following must be selected, if Y and R together are selected?

- (a) Q



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- (b) P
- (c) Z
- (d) S

Answer: B

97. In how many ways can the four keys be selected?

- (a) Eight
- (b) Ten
- (c) Six
- (d) Seven

Answer: B

98. Which among the following must be selected, if P and T together are selected?

- (a) Q
- (b) S
- (c) U
- (d) V

Answer: C

99. In how many ways the four keys can be selected, if T is not selected?

- (a) 10
- (b) 8
- (c) 6
- (d) 7

Answer: D

100. Engineering students who will complete their graduation this year will find it difficult to get used to the advanced technology being used in the corporate world. The university which designs the engineering course should concentrate on upgrading the infrastructure and improving the quality of teaching to meet industrial standards.

Which of the following assumptions does the above argument make?

- (a) There are more engineering students than job openings this year.
- (b) The engineering students graduating this year are not very determined or intelligent.
- (c) The infrastructure and teaching faculty currently available for engineering students is not up to corporate technological standards.
- (d) Engineering students will probably pursue management education instead of taking up jobs.

Answer: C



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