Bihar Assistant Professor Geography Sample Paper

Q1. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R
Assertion A: The Kuroshio current system runs from Taiwan to the Bearing strait.
Reason R: Tsushima current has relatively colder temperature and it modifies the weather conditions of the Australian coast.
In the light of the above statements, choose the most appropriate answer from the options given below
(a) Both A and R are correct and R is the correct explanation of A.
(b) Both A and R are correct but R is NOT the correct explanation of A.
(c) A is correct but R is not correct.
(d) A is not correct but R is correct.

Ans.(c)

Sol. Correct answer: (c) A is correct but R is not correct.

Introduction:

The Kuroshio current system is a warm Pacific Ocean current moving from near Taiwan toward higher latitudes, but the statement about the Tsushima current affecting the Australian coast is incorrect. Thus, the correct evaluation is that A is correct but R is not correct.

Information Booster:

- Kuroshio current system –This is a warm western boundary current in the Pacific Ocean that originates near Taiwan and flows northeastward toward Japan before contributing to wider North Pacific circulation patterns.
- The current continues as part of a larger system influenced by global ocean circulation, ultimately reaching toward the broader Pacific and higher latitudes near the Bering Sea region
- The assertion correctly describes the broad direction of the Kuroshio current system from west to northeast across the Pacific.

Additional Knowledge:

- Tsushima Current –This is a branch of the Kuroshio current that flows into the Sea of Japan and influences coastal climates of Japan, not Australia.
- The Reason statement incorrectly says it has a colder temperature and affects Australian weather, which is not supported, because the Tsushima current is warm and does not extend toward the Australian coast.

Q2. Match the LIST-I with LIST-II

LIST-I (Country)	LIST-II (Infant Mortality Rate in 2024, per 1000 live births)
A. Sudan	I. 36
B. Bangladesh	II. 23
C. Indonesia	III. 17
D. Norway	IV. 02

Choose the correct answer from the options given below:
(a) A-IV, B-III, C-II, D-I
(b) A-III, B-IV, C-I, D-II
(c) A-I, B-II, C-III, D-IV
(d) A-II, B-I, C-IV, D-III

Ans.(c)

Sol. Correct answer: (c) A-I, B-II, C-III, D-IV

Introduction:
Infant Mortality Rate (IMR) reflects the number of infant deaths per 1,000 live births and indicates the level of healthcare and socio-economic development. The correct matching is Sudan–36, Bangladesh–23, Indonesia–17, Norway–02.
Information Booster:
- Sudan – 36
  - High IMR due to political instability, limited healthcare access, and poverty.
- Bangladesh – 23
  - Significant improvement due to maternal healthcare programs.
  - Still higher than developed nations.
- Indonesia – 17
  - Moderate IMR reflecting developing economy with improving health infrastructure.
- Norway – 02
  - Very low IMR due to advanced medical care and strong welfare systems.

Additional Knowledge:
- Developed countries typically have IMR below 5.
- Sub-Saharan African nations often report higher IMR values due to systemic challenges.

Q3. Arrange the following relief features of Atlantic Ocean from south to north.
A. Romanche deep
B. Dolphin ridge
C. Walvis ridge
D. Wyville Thomson ridge
Choose the correct answer from the options given below:
(a) A, D, B, C
(b) C, A, B, D
(c) D, B, C, A
(d) C, B, A, D
Ans.(b)
Sol. Correct answer: (b) C, A, B, D
Introduction:
The Atlantic Ocean features various underwater relief structures such as ridges and deeps. The correct south-to-north sequence is: Walvis Ridge, Romanche Deep, Dolphin Ridge, Wyville Thomson Ridge.
Information Booster:
- Walvis Ridge – Located in the South Atlantic near the coast of Namibia and Angola, it is the southernmost among the listed features.
- Romanche Deep – A deep trench located slightly north of Walvis Ridge in the equatorial Atlantic region.
- Dolphin Ridge – Located further north in the Atlantic Ocean, forming part of the Mid-Atlantic ridge system.
- Wyville Thomson Ridge – Situated in the northern Atlantic between Scotland and Iceland, it is the northernmost feature in this sequence.

Additional Knowledge:
- Other sequences are incorrect as they do not follow the true latitudinal order from south to north.

Q4. Read the following statements : (I) Stratosphere normally holds very little water vapors or dust. (II) Ozone molecules warm the stratosphere causing temperature to increase with altitude. Which one of the above statement(s) is/are correct?
(a) Only I
(b) Only II
(c) Both I and 11
(d) None of the above
Ans.(c)
Sol. Correct answer: (c) Both I and II
Introduction:
The Stratosphere is a stable atmospheric layer characterized by very little water vapor and a temperature increase with height due to ozone absorption; hence both statements are correct.
Information Booster:
- Stratosphere holds very little water vapour or dust -
  - The stratosphere lies above the troposphere.
  - It contains very low moisture content because most water vapor remains confined to the troposphere.
  - Dust particles are also minimal, making it a stable and clear layer.
- Ozone warms the Stratosphere -
  - The ozone layer is concentrated in the stratosphere.
  - Ozone absorbs ultraviolet radiation from the Sun.
  - This absorption releases heat, causing temperature to increase with altitude (temperature inversion).

Additional Knowledge:
- Only First Statement -
  - Incorrect because the second statement is scientifically valid.
- Only Second Statement -
  - Incorrect because the stratosphere indeed contains very little water vapor.
- None of the Statements -
  - Incorrect since both atmospheric characteristics are accurate.

Q5. According to census of India 2011, which of the following is not a criteria for Urban area?
(a) Place with municipality, corporation or cantonment
(b) A minimum population of 2500,
(c) A population density of at least 400 persons per square kilometre
(d) At least 75% of the- male working population in non-agricultural activities.
Ans.(b)
Sol. Correct answer: (b) A minimum population of 2500.
Introduction:
According to the 2011 Census of India, the minimum population criterion of 2500 is outdated; modern urban classification relies on multiple criteria, making this specific number not applicable.
Information Booster:
- Minimum population: The Census now emphasizes population density, occupation structure, and administrative status rather than a fixed 2500 threshold.

Additional Knowledge:
- Place with municipality, corporation, or cantonment: Always classified as urban.
- Population density of at least 400 persons per sq km: Required for rural areas to qualify as urban.
- At least 75% of male working population in non-agricultural activities: Indicates economic function, a key urban criterion.

Q6. Where is Indian Photo-Interpretation institute located?
(a) Hyderabad
(b) Bengaluru
(c) Dehradun
(d) Sriharikota
Ans.(c)
Sol. Correct answer: (c) Dehradun
Introduction:
The Indian Institute of Remote Sensing (IIRS), responsible for training and research in photo-interpretation, is located in Dehradun.
Information Booster:
- IIRS - Focuses on satellite image analysis, remote sensing, and geographic information system (GIS) applications.
- It provides education, training, and research support for resource management, environmental studies, and disaster monitoring.

Additional Knowledge:
- Hyderabad and Bengaluru - Major centers for space research (like ISRO), but not the main photo-interpretation institute.
- Sriharikota - Launch site for Indian satellites, not a training institute.

Q7. The rotational fall of a slab of materials is known as:
(a) Rock fall
(b) Collapse
(c) Subsidence
(d) Topple
Ans.(d)
Sol. Correct answer:
Introduction:
In mass wasting processes, the rotational fall of a slab of material is known as Topple, where rock blocks rotate forward about a pivot point.
Information Booster:
- Topple -
  - Toppling occurs when a block of rock rotates forward and falls due to gravity.
  - The movement happens along a pivot point at the base.
  - It is common on steep slopes or cliffs where joints and fractures weaken the rock.
  - Unlike simple falling, toppling involves rotational movement before detachment.

Additional Knowledge:
- Rock Fall -
  - Rock fall involves the sudden free fall of detached rock fragments.
  - It does not necessarily involve rotational pivoting before descent.
- Collapse -
  - Collapse refers to sudden downward failure of ground or structure.
  - It is broader in meaning and not specifically rotational slab movement.
- Subsidence -
  - Subsidence is the gradual sinking of land.
  - It is generally vertical and slow, not a rotational fall.

Q8. Which of the following statements is correct about a network having a beta index (p) less than 1.0?
(a) The network is disconnected.
(b) The network has limited connectivity.
(c) The network is fully connected.
(d) The network has redundant connections.
Ans.(a)
Sol. Correct answer: (a) The network is disconnected.
Introduction:
In graph theory and transport geography, the **beta index** measures the extent of connectivity in a network; if it is **less than 1.0**, the network does **not have enough links to connect all nodes.**
Information Booster:
- Beta Index < 1.0: The beta index is defined as the **ratio of links to nodes** in a network graph (Beta = number of links ÷ number of nodes). :contentReference[oaicite:4]{index=4}
- If the value is <1.0, this means there are **fewer links than nodes**—suggesting that some nodes are isolated and **the network is disconnected.** :contentReference[oaicite:5]{index=5}
- In a wellconnected network, the beta index would be ≥1.0, meaning there are enough connections to reach all nodes. :contentReference[oaicite:6]{index=6}

Additional Knowledge:
- Networks with a beta index of **exactly 1.0** typically form **simple loops** connecting all nodes with one extra link beyond a purely treelike structure. :contentReference[oaicite:7]{index=7}
- Beta indexes **greater than 1.0** indicate redundant connections and more complex interlinking among nodes. :contentReference[oaicite:8]{index=8}

Q9. Which index measures development beyond GDP?
(a) GNP
(b) HDI
(c) NNP
(d) CPI
Ans.(b)
Sol. Correct Answer: (b) HDI
Introduction:
The Human Development Index (HDI) is a composite indicator that measures development beyond mere economic output like GDP.
Information Booster:
- HDI – Developed by the United Nations Development Programme (UNDP).
- Measures development based on life expectancy, education, and per capita income.
- Provides a multidimensional approach to development.
- Moves beyond purely economic metrics.

Additional Knowledge:
- GNP – Measures total national income including overseas earnings.
- NNP – Accounts for depreciation from GNP.
- CPI – Measures inflation and price level changes.

Q10. Which settlement pattern is typical in canal irrigated Punjab?
(a) Dispersed
(b) Nucleated
(c) Linear
(d) Radial
Ans.(b)
Sol. Correct Answer: (b)
Introduction:
The nucleated settlement pattern is typical in canal-irrigated regions of Punjab due to planned agriculture and compact village organization.
Information Booster:
- Nucleated Settlement – Houses are closely clustered together, forming a compact village.
- Common in canal irrigated Punjab where agriculture is organized and fields lie outside the residential cluster.
- Facilitates community interaction, security, and efficient irrigation management.
- Developed historically due to collective farming practices and need for social cohesion.

Additional Knowledge:
- Dispersed Settlement – Houses scattered over large areas, typical in hilly or forested regions.
- Linear Settlement – Develops along roads, rivers, or canals in elongated form.
- Radial Settlement – Develops around a central point with roads radiating outward.

Q11. Which map scale shows highest detail?
(a) 1:1,000,000
(b) 1:500,000
(c) 1:50,000
(d) 1:10,000
Ans.(d)
Sol. Correct Answer: (d)
Introduction:
Map scale determines the level of detail; a scale of 1:10,000 shows the highest detail among the given scales.
Information Booster:
- Large Scale Map – Represents a smaller area with greater detail.
- A scale of 1:10,000 means 1 unit on map equals 10,000 units on ground.
- Provides high accuracy and finer features.

Additional Knowledge:
- 1:50,000 – Moderate detail, commonly used for topographic maps.
- 1:500,000 and 1:1,000,000 – Small scale maps covering large areas with less detail.

Q12. Identify the INCORRECT statement about Geomorphic Processes:
(a) Weathering is the in-situ breakdown of rocks without significant movement of material.
(b) Mass wasting involves downslope movement of material under the influence of gravity.
(c) Erosion and deposition are external geomorphic processes driven by exogenic forces.
(d) Chemical weathering is more dominant in cold and dry climatic conditions.
Ans.(d)
Sol. Correct Answer: (d)

Introduction:
Geomorphic processes shape Earth's surface; the incorrect statement is that chemical weathering is more dominant in cold and dry climates.
Information Booster:
- Chemical Weathering – Most active in warm and humid climates.
- Requires water and higher temperatures for reactions like oxidation and hydrolysis.
- Thus, dominance in cold and dry climates is incorrect.

Additional Knowledge:
- Weathering – In-situ breakdown of rocks without transport.
- Mass Wasting – Downslope movement under gravity.
- Erosion and Deposition – Driven by exogenic agents like rivers, wind, glaciers.

Q13. Which of the following protected area categories in India allows limited human activity while promoting conservation, research, and sustainable development through zonation?
(a) National Park
(b) Biosphere Reserve
(c) Wildlife Sanctuary
(d) Conservation Reserve
Ans.(b)
Sol.
Correct Answer: (b)
Introduction:
Protected areas are designated regions aimed at conserving biodiversity and ecosystems. Among these categories, a Biosphere Reserve allows limited human activity through a system of zonation.
Information Booster:
Biosphere Reserve
- Biosphere reserves are designed to promote biodiversity conservation, research, and sustainable development.
- They follow a zonal management system consisting of core zone, buffer zone, and transition zone.
- The core zone is strictly protected for conservation.
- The buffer and transition zones allow controlled human activities such as research, education, and sustainable resource use.

Additional Knowledge:
- National Park –
  - National parks are areas with strict protection and minimal human activity
- Wildlife Sanctuary –
  - Wildlife sanctuaries allow some limited activities but do not follow the zonation system used in biosphere reserves.
- Conservation Reserve –
  - Conservation reserves protect specific habitats or landscapes but are not structured for large-scale zonal management.

Q14. In Köppen classification, the symbol 'Cfb' represents:
(a) Humid subtropical with dry winter
(b) Marine west coast climate
(c) Mediterranean climate
(d) Tropical monsoon climate

Ans.(b)
Sol.
Correct Answer: (b)
Introduction:
The Köppen Climate Classification system categorizes climates based on temperature and precipitation patterns. The symbol Cfb represents the Marine West Coast Climate.
Information Booster:
- Cfb Climate
  - The symbol C indicates a temperate or warm temperate climate.
  - The letter f denotes no dry season with precipitation distributed throughout the year.
  - The letter b signifies warm summers but not extremely hot.
  - This climate occurs in regions such as Western Europe, New Zealand, and parts of Chile.

Additional Knowledge:
- Humid Subtropical Climate –
  - This climate corresponds to Cfa or Cwa in the Köppen system.
- Mediterranean Climate –
  - Represented by Csa or Csb, characterized by dry summers and wet winters.
- Tropical Monsoon Climate –
  - Denoted by Am in the Köppen classification.

Q15. Which of the following indicators is often used to measure the impact of rural–urban migration on urban population growth?
(a) Crude birth rate
(b) Net migration rate
(c) Infant mortality rate
(d) Dependency ratio
Ans.(b)
Sol.
Correct Answer: (b)
Introduction:
Migration is a major factor influencing urban population growth. The indicator commonly used to measure the impact of migration is the Net Migration Rate.
Information Booster:
- Net Migration Rate
  - Net migration rate measures the difference between the number of immigrants and emigrants in a region.
  - It helps assess the contribution of migration to population change.
  - In the context of rural–urban migration, it reflects the extent to which people move from rural areas to cities.
  - This indicator helps analyze urbanization trends, labor market changes, and demographic pressure on cities.

Additional Knowledge:
- Crude Birth Rate –
  - Crude birth rate measures the number of births per thousand population and relates to fertility rather than migration.
- Infant Mortality Rate –
  - This indicator measures deaths of infants under one year of age per thousand live births.
- Dependency Ratio –

- Dependency ratio shows the proportion of dependent population relative to the working population.

Q16. Which of the following factors primarily determines vulnerability to disasters?
1. Population density
2. Socio-economic conditions
3. Preparedness and infrastructure
4. Latitude of the region

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

Ans.(b)

Sol. Answer: (b)

Introduction:

In disaster management, vulnerability refers to the degree to which individuals or communities are likely to suffer damage from hazards due to their social, economic, and physical conditions. The major determinants include population density, socio-economic conditions, and preparedness.

Information Booster:

Additional Knowledge:

- Population Density
  - Regions with high population density have more people exposed to potential hazards.
  - Disasters in densely populated areas often lead to higher casualties and greater economic loss.
  - Urban regions with crowded settlements are therefore considered more vulnerable.
- Socio-Economic Conditions
  - Communities with low income, poor housing, and limited access to resources are more vulnerable to disasters.
  - Economic constraints reduce the ability of people to prepare for, respond to, and recover from disasters.
  - Social inequality, lack of education, and poverty significantly increase disaster risk.
- Preparedness and Infrastructure
  - Preparedness measures such as early warning systems, evacuation planning, and disaster-resilient infrastructure reduce vulnerability.
  - Regions with strong infrastructure and effective disaster management institutions experience less damage and faster recovery.
  - Government policies and community awareness play a critical role in risk reduction.
- Latitude of the Region
  - Latitude mainly determines climatic conditions rather than vulnerability.
  - While certain hazards like cyclones or polar storms may be more common at specific latitudes, vulnerability depends primarily on human and socio-economic factors.
  - Therefore, latitude alone does not determine the degree of disaster vulnerability.
- Components of Disaster Risk
  - Disaster risk is generally understood through the relationship between hazard, exposure, and vulnerability.
  - Even a severe hazard may not become a disaster if vulnerability is low and preparedness is strong.

Q17. Assertion (A): In a Geographical Data Matrix, rows generally represent geographic entities.
Reason (R): Columns in the matrix represent attributes associated with each geographic feature.
(a) Both A and R are correct and R explains A
(b) Both A and R are correct but R does not explain A
(c) A is correct but R is incorrect
(d) A is incorrect but R is correct
Ans.(b)
Sol. Answer: (b)
Introduction:
A Geographical Data Matrix is a structured format used in GIS and spatial analysis to organize geographic information, where rows typically represent geographic entities and columns represent attributes. Both statements are correct, but the reason does not directly explain the assertion.
Information Booster:
Additional Knowledge:
- Rows Represent Geographic Entities
  - In a geographical data matrix, each row corresponds to a specific geographic feature.
  - Examples of such features include cities, villages, rivers, districts, or weather stations.
  - This arrangement allows each entity to be analyzed individually while maintaining its spatial identity.
- Columns Represent Attributes
  - The columns of the matrix represent attributes or variables associated with each geographic feature.
  - Examples include population, rainfall, elevation, literacy rate, or land-use type.
  - This structure allows researchers to compare multiple characteristics across geographic entities.
- Geographic Data Organization
  - The data matrix structure is widely used in GIS databases and spatial statistics.
  - It enables efficient data storage, analysis, and visualization.
- Relationship Between Rows and Columns
  - Although both statements describe the structure of a data matrix, the description of columns does not directly explain why rows represent entities.
  - Therefore, the statements are individually correct but logically independent.

Q18. Which symbol on a weather map represents occluded fronts?
(a) Alternating triangles and semicircles on opposite sides
(b) Triangles pointing in direction of movement
(c) Alternating triangles and semicircles on same side
(d) Only semicircles
Ans.(c)
Sol. Answer: (c)
Introduction:
In meteorology, weather maps use standardized symbols to represent atmospheric features such as fronts, pressure systems, temperature, and precipitation. An occluded front occurs when a cold front overtakes a warm front and is represented by alternating triangles and semicircles on the same side of the line.
Information Booster:
- Occluded Front Symbol - An occluded front forms when a cold front catches up with a warm front, lifting the warm air completely off the ground.
- On a weather map, it is shown by alternating triangles and semicircles placed on the same side of a purple line.
- The symbols point in the direction in which the occluded front is moving.

- Occluded fronts generally occur in the later stages of cyclonic development, particularly in mid-latitude cyclones.
- They often bring widespread cloudiness, precipitation, and changing weather conditions.

Additional Knowledge:

- Cold Front Symbol -
  - A cold front is represented by a blue line with triangles on one side.
  - The triangles indicate the direction of movement of the cold air mass.
  - Cold fronts often produce short-lived but intense rainfall, thunderstorms, and rapid temperature drops.
- Warm Front Symbol -
  - A warm front is represented by a red line with semicircles on one side.
  - It occurs when warm air gradually slides over a colder air mass.
  - Warm fronts generally bring steady precipitation and gradually rising temperatures.
- Stationary Front Symbol -
  - A stationary front is shown by alternating triangles and semicircles on opposite sides of the line.
  - It occurs when neither air mass advances significantly.
  - This condition may produce persistent cloudy weather and prolonged rainfall.

Q19. Assertion (A): Anticyclones are generally associated with heavy rainfall and overcast skies.
Reason (R): Air in anticyclones descends and suppresses cloud formation.

(a) Both A and R are correct and R explains A
(b) Both A and R are correct but R is not the correct explanation
(c) A is correct but R is incorrect
(d) A is incorrect but R is correct

Ans.(d)

Sol. Correct Answer: (D) Assertion is false, but Reason is true.

Explanation:

→ Anticyclones are high-pressure systems in the atmosphere.

→ In anticyclones, air descends (sinks) from the upper atmosphere toward the surface.

→ Descending air warms and becomes drier, which prevents cloud formation.

→ Therefore, anticyclones are usually associated with clear skies, dry weather, and stable atmospheric conditions, not heavy rainfall.

→ Hence, the Assertion is incorrect, while the Reason is correct.

Information Booster:

→ Cyclones (low-pressure systems) are generally associated with cloud formation, strong winds, and heavy rainfall.

→ Anticyclones (high-pressure systems) usually bring calm, dry, and clear weather.

→ In winter, anticyclones can sometimes cause fog and cold waves due to stable atmospheric conditions.

Q20. In a topographic map, a saddle is best described as:
(a) A flat plain between hills
(b) A low point between two higher peaks
(c) A steep valley floor
(d) A plateau with steep sides
Ans.(b)
Sol.
Answer: (b)
Introduction:
In geomorphology, a saddle refers to a landform that represents a low point between two higher elevations such as peaks or hills.
Information Booster:
- Saddle Landform - A saddle is a depressed area between two higher mountain peaks.
- It resembles the shape of a horse saddle, hence the name.
- On a topographic map, it appears as two adjacent hill contours with a lower elevation between them.
- Saddles often serve as natural mountain passes or routes for travel.
- They are important in drainage patterns, watershed divides, and route planning.

Additional Knowledge:
- Valley -
  - A valley is a long depression between hills or mountains.
  - It is usually formed by river erosion or glacial activity.
- Plateau -
  - A plateau is a broad elevated flat surface.
  - It is surrounded by steep slopes or escarpments.
- Plain -
  - A plain is a large area of flat or gently rolling land.
  - It usually has very small elevation differences.

Q21. Consider the following statements regarding contour lines:
1. Contour lines join points of equal elevation above mean sea level.
2. Two contour lines of different elevations can intersect in nature.
3. Contours crossing a valley form a V-shape pointing upstream.
4. Closely spaced contours indicate a steep slope.

Which of the statements given above are correct?
(a) 1, 3 and 4
(b) 1 and 2 only
(c) 2 and 4 only
(d) 1, 2, 3 and 4
Ans.(a)
Sol. Answer: (a)
Introduction:
Contour lines are fundamental elements of topographic maps that connect points of equal elevation above mean sea level, helping to represent landforms and terrain characteristics.
Information Booster:
Additional Knowledge:
- Equal Elevation Representation - Contour lines connect points with the same elevation relative to mean sea level.

- V-Shape in Valleys - When contours cross a valley or stream, they form a V-shape pointing upstream.
- This pattern helps identify the direction of river flow.
- Closely Spaced Contours - When contour lines are very close together, the terrain is steep.
- Such patterns are common in mountain slopes and escarpments.
- Intersection of Contours -
  - Contour lines of different elevations never intersect in normal terrain.
  - If they intersect, it would imply that a single location has two different elevations, which is impossible.
- Closed Contours -
  - Closed contour lines indicate hills or depressions.
  - Higher values toward the center represent a hill, while lower values may indicate a depression.

Q22. The Deccan Plateau is separated from the northern plains mainly by which mountain range?
(a) Aravalli Range
(b) Satpura Range
(c) Vindhya Range
(d) Western Ghats
Ans.(c)
Sol.
Answer: (c)
Introduction:
The Deccan Plateau is separated from the northern plains of India primarily by the Vindhya Range.
Information Booster:
- Vindhya Range - Forms the natural boundary between the fertile northern plains and the elevated Deccan Plateau.

Additional Knowledge:
- Aravalli Range - Located in western India, unrelated to Deccan separation.
- Satpura Range - Runs parallel to Vindhyas but more central; not main separator.
- Western Ghats - Forms western boundary of Deccan, not northern plains.

Q23. The tropical cyclones originating in the Atlantic ocean are known as :
(a) Hurricanes
(b) Typhoons
(c) Willy-willies
(d) Cyclones
Ans.(a)
Sol. Answer: (a) Hurricanes
Introduction:
Tropical cyclones are intense low-pressure systems that develop over warm ocean waters and are known by different names in different ocean basins, depending on their location.
Information Booster:
• Hurricanes – Term used in the Atlantic Ocean and northeastern Pacific Ocean
• Typhoons – Term used in the northwestern Pacific Ocean
• Cyclones – Term used in the Indian Ocean and South Pacific
• All are the same meteorological phenomenon but differ in naming conventions based on region
Additional Knowledge:
• Willy-willies – Local term used in Australia for tropical cyclones
• Conditions for formation:

– Sea surface temperature above 26–27°C
– Presence of Coriolis force (hence not formed near the equator)
– Low vertical wind shear and high humidity
• Structure:
– Eye: Calm center with low pressure
– Eyewall: Region of maximum wind speed and intense rainfall
– Spiral rainbands surrounding the system
• Rotation:
– Anticlockwise in the Northern Hemisphere
– Clockwise in the Southern Hemisphere
• Impacts:
– Heavy rainfall leading to floods
– Storm surges causing coastal inundation
– Strong winds damaging infrastructure
– Can trigger landslides in hilly regions
• Examples:
– Hurricane Katrina (USA)
– Cyclone Amphan (India–Bangladesh)
• These systems play a dual role—while destructive, they also help in redistributing heat and maintaining global atmospheric balance.

Q24. Identify the correct descending sequence (large scale to small scale) of following maps :
(a) Topographical map - Atlas map - Wall map - Cadastral map
(b) Wall map - Adas map - Cadastral map - Topographical map
(c) Topographical map - Cadastral map - Wall map - Atlas map
(d) Cadastral map - Topographical map - Wall map - Atlas map
Ans.(d)

Sol. Correct Answer: (d) Cadastral map → Topographical map → Wall map → Atlas map

Introduction:
Maps are classified based on their scale, which determines how much detail they show and the area they cover.

Information Booster:
• Cadastral Maps – Very large scale; show detailed land parcels, boundaries, and ownership
• Topographical Maps – Large to medium scale; show relief features like contours, rivers, and settlements
• Wall Maps – Small scale; used for general reference with limited detail
• Atlas Maps – Very small scale; highly generalized, covering large regions like countries or continents

Additional Knowledge:

• Large scale → More detail, smaller area

• Small scale → Less detail, larger area

• Widely used in planning, navigation, land records, and administration

Q25. Silver firs, junipers and rhododendrons trees are common in which one of the following altitudinal ranges in Himalayas ?
(a) 1000 - 2000 m
(b) 2000 - 3000 m

(c) 3000 - 4000 m
(d) 4000 - 5000 m
Ans.(b)
Sol. Correct Answer: (b) 2000–3000 m
Introduction:
Vegetation in the Himalayas changes with altitude, primarily due to variations in temperature, rainfall, and soil conditions.
Information Booster:
• Montane forests – Occur between 2000–3000 m above sea level
• Dominant trees include fir, juniper, pine, and rhododendron
• Climate is cool temperate with significant rainfall
• Forests are generally dense and support rich biodiversity
Additional Knowledge:
• Lower altitudes (up to 1500 m) – Subtropical forests with sal, teak, and bamboo
• Higher altitudes (above 3000 m) – Alpine vegetation, shrubs, and grasses
• Montane forests are important for soil conservation, water regulation, and wildlife habitat
• Support endemic and medicinal plant species, enhancing biodiversity

Q26. Consider the following statements:
1. India lies entirely in the Northern Hemisphere.
2. India extends from 8°4'N to 38°6'N latitude and 66°7'E to 97°25'E longitude.
3. India shares land borders with exactly seven countries.
Which of the statements are correct?
(a) 1 and 2 only
(b) 1 and 3 only
(c) 1, 2, and 3
(d) 2 and 3 only
Ans.(b)
Sol. Answer: (b)
Introduction:
India's geographical extent determines its climatic and strategic features, and the correct statements are 1 and 3 only.
Information Booster:
- Location -
  - India lies completely in the Northern Hemisphere and Eastern Hemisphere.
- Neighbours -
  - Shares land borders with 7 countries.
  - Important for geopolitics and trade.

Additional Knowledge:
- Latitudinal Error -
  - Actual extent: 8°4'N to 37°6'N.
  - Given value is incorrect → statement invalid.

Q27. National Park – Famous For

List I	List II
A. Gir	1. Asiatic Lion
B. Kaziranga	2. One-horned Rhino
C. Sundarbans	3. Mangrove forest
D. Hemis	4. Snow Leopard

Options:
(a) A-1, B-2, C-3, D-4
(b) A-2, B-1, C-3, D-4
(c) A-1, B-3, C-2, D-4
(d) A-4, B-2, C-3, D-1
Ans.(a)
Sol. Answer: (a)
Introduction:
India's national parks conserve unique ecosystems and species, and the given matching is completely correct.
Information Booster:
- Gir National Park -
  - Only habitat of Asiatic Lions in the world.
  - Located in Gujarat.
- Kaziranga National Park -
  - UNESCO site famous for one-horned rhinoceros.
  - Located in Assam.
- Sundarbans -
  - Largest mangrove forest delta.
  - Habitat of Royal Bengal Tiger.
- Hemis National Park -
  - Located in Ladakh.
  - Known for Snow Leopard conservation.

Additional Knowledge:
- National parks have strict protection with minimal human interference.

Q28. Consider the following characteristics of a stage in the Demographic Transition Model:
1. Rapid population growth due to a sharp decline in mortality rates.
2. Persistence of high fertility due to socio-cultural factors and limited access to contraception.
3. Improvement in healthcare, sanitation, and food supply.
4. Increasing urbanization leading to declining birth rates.

Which of the above statements correctly describe Stage II of the Demographic Transition Model?
(a) 1, 2 and 3 only
(b) 1 and 4 only
(c) 2, 3 and 4 only
(d) 1, 2, 3 and 4
Ans.(a)
Sol. Correct Answer: (a)
Introduction:
Stage II of the Demographic Transition Model is marked by population explosion, and the correct statements are 1, 2 and 3 only.

Information Booster:
- Decline in Death Rate -
  - Due to medical advancements, vaccination, sanitation.
- High Birth Rate -
  - Caused by traditions, agrarian economy, lack of family planning.
- Population Explosion -
  - Gap between high birth rate and declining death rate.

Additional Knowledge:
- Urbanization Effect -
  - Declining birth rates occur in Stage III.
  - Due to education, women empowerment, and economic changes.

Q29. Consider the following statements:
1. Peroxyacetyl nitrate (PAN) is a component of photochemical smog.
2. Photochemical smog forms more readily in cold and humid climates.
3. Nitrogen oxides and hydrocarbons are precursors of photochemical smog.

Which of the statements are correct?

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

Ans.(a)

Sol. Answer: (a)

Introduction:

Photochemical smog is a type of urban air pollution formed by chemical reactions under sunlight, and the correct statements are 1 and 3 only.

Information Booster:
- Formation Mechanism -
  - Occurs when nitrogen oxides (NOx) and volatile organic compounds (VOCs/hydrocarbons) react in presence of sunlight.
  - Leads to formation of secondary pollutants like ozone and PAN.
- PAN (Peroxyacetyl Nitrate) -
  - A toxic eye-irritating compound.
  - Acts as a reservoir for nitrogen oxides, prolonging pollution effects.
- Conditions -
  - Requires high temperature, strong sunlight, and stagnant air.
  - Common in cities like Los Angeles.

Additional Knowledge:
- Cold & Humid Climate -
  - Favors classical smog (London smog), caused by coal burning and sulfur dioxide.
  - Hence, statement about cold climates is incorrect.

Q30. Consider the following statements regarding dispersed rural settlements:
1. They are commonly found in regions with rugged terrain and uneven relief.
2. They are associated with fragmented landholdings and individual farmsteads.
3. They develop mainly in areas with highly fertile alluvial soils.
4. They indicate strong community clustering and nucleation of houses.

Which of the statements given above are correct?

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

Ans.(a)

Sol. Introduction:

Dispersed rural settlements are characterized by scattered habitation, and the correct statements are 1 and 2 only.

Information Booster:

- Rugged Terrain -
  - Found in hilly, forested, or uneven regions.
- Fragmented Landholding -
  - Farmers live on individual farmsteads.
  - Associated with scattered fields.

Additional Knowledge:

- Highly fertile plains promote compact (nucleated) settlements.
- Dispersed settlements show weak community clustering, not strong.