A SERIES

1. Assertion (A): The west coast of India has a greater potential of tidal energy than Eastern coast of India

Reason(R): The continental shelf of western cost is wider than Eastern coast.

a. A is false but R is true
b. A is true but R is false
c. Both are true and R is the correct explanation of A
d. Both are true but R is not the correct explanation of A

Answer: C

Explanation:

The tidal bulge on wide continental shelves has greater height (Source: Ncert Fundamentals of Physical Geography).

According to GOI India has potential of total 8000MW tidal energy of which 7200MW is to be sourced from Gulf of Cambay, 1200MW from Gulf of kutch and 100MW from gangetic delta in Sundarbans.

2. Consider the following statements about tropical cyclones

1. They are characterized by large pressure gradients

2. Which of the following statements are true

1.Presence of strong vertical winds is one of the required conditions for tropical cyclone formation.

2.The isobars are not closely spaced in a tropical cylcone

a. 1only
b. 2 only
c. Both 1 and 2
d. None of the above

Answer: a

Explanation: The isobars are closely spaced in a tropical cyclone signifying large pressure gradients.

Presence of string vertical winds disturbs the vertical transport of latent heat which is the source of energy for tropical cyclones.

(Source: Ncert India physical environment)

3. A recent study has shown that Parali 1 Island in Lakshadweep has disappeared due to coastal erosion. What are the reasons for coastal erosions?

1) Wave Energy

2) Climate Change

3) Construction of Dams

4) Sand Mining

Choose the correct answer from below

A) 1 only

B) 2,3 and 4 only

C) 1 and 2 only

D) All of the above

Answer: d

Explanations:

- Wave energy is the main cause of coastal erosion.
- Climate Change: induced global warming and the melting of ice sheets and continental glaciers continually
  increase the sea level, which leads the natural hazards such as Tsunami, storm surges, thermal expansion of
  sea water and cyclones; these hamper the natural rhythm and precipitate erosion.
- Construction of dams in catchment areas of rivers and ports, fishing harbors and jetties have sparked erosion
  and reduced the flow of sediment from river estuaries that contribute to coastal erosion.
- Sand and coral mining and dredging may affect coastal processes in various ways such as contributing to sediment deficit in the coastal system and modifying water depth that leads to altered wave refraction and long shore drift

Source PTI

4. The Global Assessment Report on Disaster Risk Reduction (GAR) is published by

a. IMF

b. UNCTAD

c. UNSIDR

d. None of the above

Answer: c

Explanation: The Global Assessment Report on Disaster Risk Reduction (GAR) is a biennial global assessment of disaster risk reduction and comprehensive review and analysis of the natural hazards that are affecting humanity. The GAR contributed to achieving the aims of the Hyogo Framework for Action through monitoring risk patterns and trends and progress in disaster risk reduction while providing strategic policy guidance to countries and the international community. It will also be a powerful tool as the world works to implement the Sendai Framework for Disaster Risk Reduction through to 2030.

5. The Great Barrier Reef is suffering from recent unprecedented coral bleaching events. Which of the flowing are reasons for coral bleaching?

1. Extra bright sunlight
2. Agricultural runoff
3. Unsustainable dredging activities
4. Changes in salinity

a. 1, 2 only

b. 1, 2,3 only

c. 2, 3,4 only

d. 1,2,3,4

Answer: d

Explanation:

The following are reasons for coral bleaching

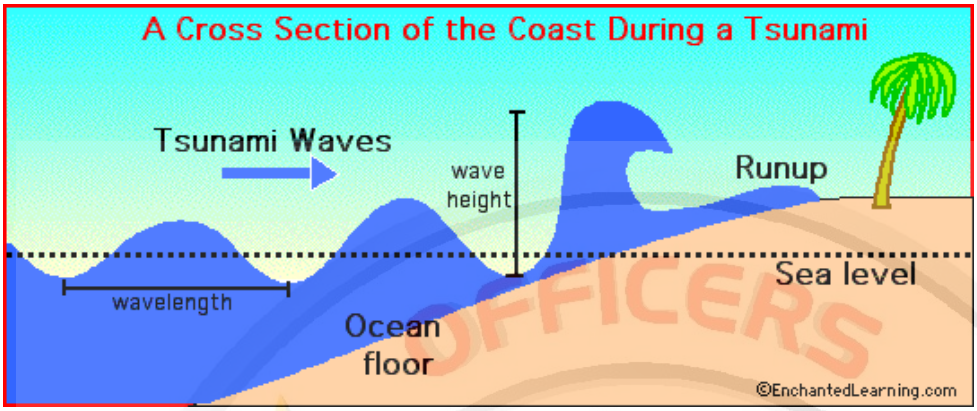
- Extra-bright sunlight, especially when combined with extra warm seawater due to climate change
- Diseases affecting coral polyps
- Pollution from urban or agricultural run-off
- Changes in the salinity of seawater
- Sedimentation from undersea activities like dredging

6. Consider the following statements

1)Ocean thermal energy conversion uses the temperature difference between cooler deep and warmer surface sea water to
produce electricity
2)A temperature difference of 20°C is favorable for OTEC.
3) India's first ocean thermal energy is coming up in Andaman and Nicobar islands.
Choose the correct statements from above
a. 1 only
b. 1 and 2 only
c. 1 and 3 only
d. 1, 2 and 3
Answer: b
Explanation:
India's maiden Ocean Thermal Energy Conversion (OTEC) project is coming up in Kavaratti, capital of the Lakshadweep
Archipelago.
India is geographically well-placed to generate ocean thermal energy, with around 2000 kms of coast length along the South
Indian coast, where a temperature difference of above 20oC is available throughout the year.
Ocean thermal energy conversion uses the temperature difference between cooler deep and warmer shallow or surface seawaters
to run a heat engine and produce electricity. It is base load electricity generation system. OTEC is one of the continuously available renewable energy resources.

7. Assertion (A): The effect of tsunami is more near the coastal area and less over the ocean
Reason(R): The height of wave in ocean is indirectly related to the depth of water.
a. Both A and R is true and R is the correct explanation of A
b. Both A and R is true but R is not the correct explanation of A
c. A is true but R is false
d. A is false but R is true
Answer: A

Explanation:



The speed of wave in the ocean depends upon the depth of water. It is more in the deeper water . As a result of this, the impact of tsunami is less over the ocean and more near the coast where they cause large-scale
Devastations due to increased height. Therefore, a ship at sea is not much affected by tsunami and it is difficult to detect a tsunami in the deeper parts of
sea. It is so because over deep water the tsunami has very long wave-length and limited wave-height. Thus, a tsunami wave raises
the ship only a meter or two and each rise and fall takes several minutes. As opposed to this, when a tsunami enters shallowwater, its wave-length gets reduced and the period remains unchanged, which increases the wave height. Sometimes, this heightcan be up to 15m or more, which causes large-scale destructions along the shores. Thus, these are also called Shallow WaterWaves

8. Recently US scientists have found 500 Seabed vents of methane. Which of the following statements are correct regarding hydrothermal vents?

1. Hydrothermal vents are places where Chemical-rich fluids emanate from the seafloor

2. Organisms living in such areas are often called extremophiles for the extreme nature of their living conditions.

A.1 only

b. 2 only

c. both 1 and 2

d. Neither 1 nor 2

Answer: C

Explanation: Hydrothermal vents and cold seeps are places where chemical-rich fluids emanate from the seafloor, often providing the energy to sustain lush communities of life in some very harsh environments Below the photic zone many microbes have evolved chemosynthetic processes that create organic matter by using oxygen in seawater to oxidize hydrogen sulphide, methane, and other chemicals present in vent and seep fluids. Organisms living in such areas are often called extremophiles for the extreme nature of their living conditions.

9. Consider the below statements regarding earthquakes in the Indian subcontinent.

1. Earthquakes in the Himalayan region are mainly due to the movement of Indian plate towards the Eurasian plate.

2. Earthquakes in Central India are caused due to the presence of fault lines in the Indian plate.

Choose the **incorrect** statements

a. 1 only

b. 2 only

c. both 1 and 2

d. Neither 1 nor 2

Answer: d

Explanation:

Earthquakes that are of tectonic origin have proved to be the most devastating and their area of influence is also quite large. These earthquakes result from a series of earth movements brought about by a sudden release of energy during the tectonic activities in the earth's crust. As compared to these, the earthquakes associated with volcanic eruption, rock fall, landslides, subsidence, particularly in the mining areas,

impounding of dams and reservoirs, etc. have limited area of influence and the scale of damageIndian plate is moving at a speed of one centimetre per year towards the north and northeastern direction and this movement of plates is being constantly obstructed by the Eurasian plate from the north.

As a result of this, both the plates are said to be locked with each other resulting in accumulation of energy at different points of time. Excessive accumulation of energy results in building up of stress, which ultimately leads to the breaking up of the lock and the sudden release of energy, causes earthquakes along the Himalayan arch. Some of the most vulnerable states are Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and the Darjiling and subdivision of West Bengal and all the seven states of the northeast. Apart from these regions, the central-western parts of India, particularly Gujarat (in 1819, 1956 and 2001) and Maharashtra (in 1967 and 1993) have also experienced some severe earthquakes.

Earth scientists have found it difficult to explain the occurrence of earthquakes in one of the oldest, most stable and mature landmass of Peninsular block for a long time. Recently, some earth scientists have come up with a theory of emergence of a fault line and energy build-up along the fault line represented by the river Bhima(Krishna) near Latur and Osmanabad (Maharashtra) and the possible breaking down of the Indian plate

10. Identify the correctly matched pairs from below

Local storms	Region
1. Mango showers	Andhra Pradesh
2. Blossom showers	KARNATAKA
3. Norwesters	Bengal
4. Loo	Punjab

a. 1 only
b. 1 and 3 only
c. 3 and 4 only
d. 2, 3 and 4 only

Answer: d

All the given pairs are matched correctly. **The best available choice is d**

Explanation:-

Blossom shower – Karnataka and Kerala

Some Famous Local Storms of Hot Weather Season

(i) *Mango Shower :* Towards the end of summer, there are pre-monsoon showers which are a common phenomena in Kerala and coastal areas of Karnataka. Locally, they are known as mango showers since they help in the early ripening of mangoes.

(ii) *Blossom Shower :* With this shower, coffee flowers blossom in Kerala and nearby areas.

(iii) *Nor Westers :* These 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"*.

(iv) *Loo :* Hot, dry and oppressing winds blowing in the Northern plains from Punjab to Bihar with higher intensity between Delhi and Patna.

Source: Class 11- Physical environment

11. Assertion (A): The Arabian sea branch of the South west monsoon enters West Bengal and Bangladesh from south and southeast instead of from the south-westerly direction.

Reason (R): The Arakan Hills along the coast of Myanmar deflect the Arabian sea branch towards the Indian subcontinent.

a. Both A and R is true and R is the correct explanation of A
b. Both A and R is true but R is not the correct explanation of A
c. A is true but R is false

d. Both A and R is false

Answer:-d

Explanation:-

Monsoon Winds of the Bay of Bengal

The Bay of Bengal branch strikes the coast of Myanmar and part of southeast Bangladesh. But the Arakan Hills along the
coast of Myanmar deflect a big portion of this branch towards the Indian subcontinent. The monsoon, therefore, enters West Bengal and Bangladesh from south and southeast instead of from the south-westerly direction.From here, this branch splits into two under the influence of the Himalayas and the thermal low is northwest India. Its one branch moves westward along the Ganga plains reaching as far as the Punjab plains. The other branch moves up the Brahmaputra valley in the north and the northeast, causing widespread rains. Its sub-branch strikes the Garo and Khasi hills of Meghalaya. Mawsynram, located on the crest of Khasi hills, receives the highest average annual rainfall in the world

12. Which of the following mountains are fold mountains?

a)Alps

b)Appalachian

c)Aravalli

d)All the above

Answer:d

Explanation:- There are three types of mountains- Fold Mountains, Block Mountains and the VolcanicMountains. The Himalayan Mountains and the Alps are young fold mountains with rugged relief and high conical peaks. The Aravali range in India is one of the oldest fold mountain systems in the world.

The range has considerably worn down due to the processes of erosion. The Appalachians in North America and the Ural mountains in Russia have rounded features and low elevation. They are very old fold mountain.

13. Identify the correctly matched pairs

Volcano	Type of landforms
1)Mt.Vesuvius	Composite volcano
2)Hawaiian volcanoes	Shield volcano
3)Deccan Plateau	Flood basalt provinces

a)3 only

b)1 and 3 only

c)2 and 3 only

d) 1,2 and 3

Answer:d

Explanation:-

The above are various extrusive landforms of volcanoes

Flood basalt provinces:- Highly fluid lava

Flows long distance and covers large area

eg- Deccan plateau and snake basin plains of USA

Shield Volcanoes:- Largest and made up of basalt (fluid) lava .

Not steep

14. Arrange the below features of South American Physical map from North to South

1)Selvas

2)Pampas

3)Campos

4)Patagonian Desert

a)1,2,3,4

b)1,3,2,4

c)3,4,2,1

d)2,4,1,3

Answer:b

Explanation:

Patagonian desert lies at the southern most region in south america

Campos:- Tropical/savana grassland in brazillian high, Llanos is also a tropical grassland but lies above

the equator in venezuela and river orincoco flows through it.

Selvas:- Tropical rainforest in amazon basin

Pampas:-temperate grasslands in uruguay and argentina

15. Arrange the below deserts from east to west

1) Thar desert

2) Gobi Desert

3) Sahara desert

4) Attacama desert

a)1,2,3,4

b)1,3,2,4

c)3,4,2,1

d)2,1,3,4

Answer:d

Explanation:

16. Consider the following statements regarding fishing industry in Japan.

Assertion (A): The continental shelves around the islands of Japan are rich in plankton

.

Reason (B): The warm oyashio and cold kuroshio currents meet near Japanese islands.

a. Both A and R is true and R is the correct explanation of A
b. Both A and R is true but R is not the correct explanation of A
c. A is true but R is false
d. Both A and R is false

Answer: c

Explanation:

Kuroshio is warm current oyashio is cold current.

Meeting of warm and cold currents ensure rich plankton resources.

17. Consider the following. Indian Standard Meridian (82˚30'E meridian) passes through

i) Uttar Prasdesh
ii) Madhya Pradesh
iii) Chhatisgarh
iv) Orissa
v) Andhra Pradesh.

Choose the appropriate code.

a)I,ii,iv only
b)I,ii,iii only
c)I,iii,iv only
d) All the above.

Solution d

Indian Standard meridian passes through all the above states.

18. Which of the following state shares boundaries with maximum number of states.

a) Uttar Pradesh.
b)Rajasthan.
c)Telangana.
d)Madhya Pradesh.

Solution a

Uttar Pradesh borders maximum number of states- 8 (Eight): Uttaranchal, Himachal Pradesh, Haryana, Rajasthan, MP, Chhatisgath, Jharkhand and Bihar.

19. Tropic of Cancer passes through which of the following states ..

i)Gujarat

ii)Rajasthan

iii) Madhya Pradesh

iv) Jharkhand

v)Tripura

vi) Uttar Pradesh.

Choose the appropriate code.

a)I,ii,iv,vi only

b)I,iii,iv,v,vi only

c)ii,iv,v only

d)I,ii,iii,iv,v only

Solution d

Tropic of Cancer passes through 8 (Eight) States: Gujarat, Rajasthan, MP, Chhatisgarh, Jharkhand, West Bengal, Tripura and Mizoram.

20. Consider the following

i)There is a time lag of two hours between India's Eastern limit and Western boundary limit.

ii) The southernmost point of the Indian Union– 'Indira Point' got submerged under the sea water .

Which of the following is/are true?

a) i only

b)ii only

c)Both I & ii only

d)Neither I nor ii .

Solution c

The southernmost point of the Indian Union– 'Indira Point' got submerged under the sea water in 2004 during the Tsunami.

Gujarat to Arunachal Pradesh there is a time lag of two hours.

21. Uttarakhand, Uttar Pradesh, Bihar, West Bengal and Sikkim have common frontiers with

(a) China

(b) Bhutan

(c) Nepal

(d) Myanmar

Solution : c

Map based question. Uttarakhand, Uttar Pradesh, Bihar, West Bengal and Sikkim have common frontiers with Nepal.

22. If you intend to visit Kavarati during your summer vacations, which one of the following Union Territories of India you will be going to

a) Puducherry

b) Lakshadweep

c) Andaman and Nicobar

d) Diu and Daman

Solution : b

Kavarati island is located in Lakshadweep.

23. Consider the following statements.

i) The longitudinal valley lying between Middle HIamalayas and the Shiwaliks are known as Duns.

ii) Majuli, in the Brahmaputra River is the largest inhabited riverine island in the world.

Which of the following is true?

a) i only

b)ii only

c)Both I & ii only

d)Neither I nor ii .

Solution c

Majuli, in the Brahmaputra River is the largest inhabited riverine island in the world.

The longitudinal valley lying between lesser Himalaya and the Shiwaliks are known as Duns. Dehra Dun, Kotli Dun and Patli Dun are some of the well-known Duns.

24. Consider the following

1. Zoji La
2. Khardung La
3. Fotu La

The above passes are found in?

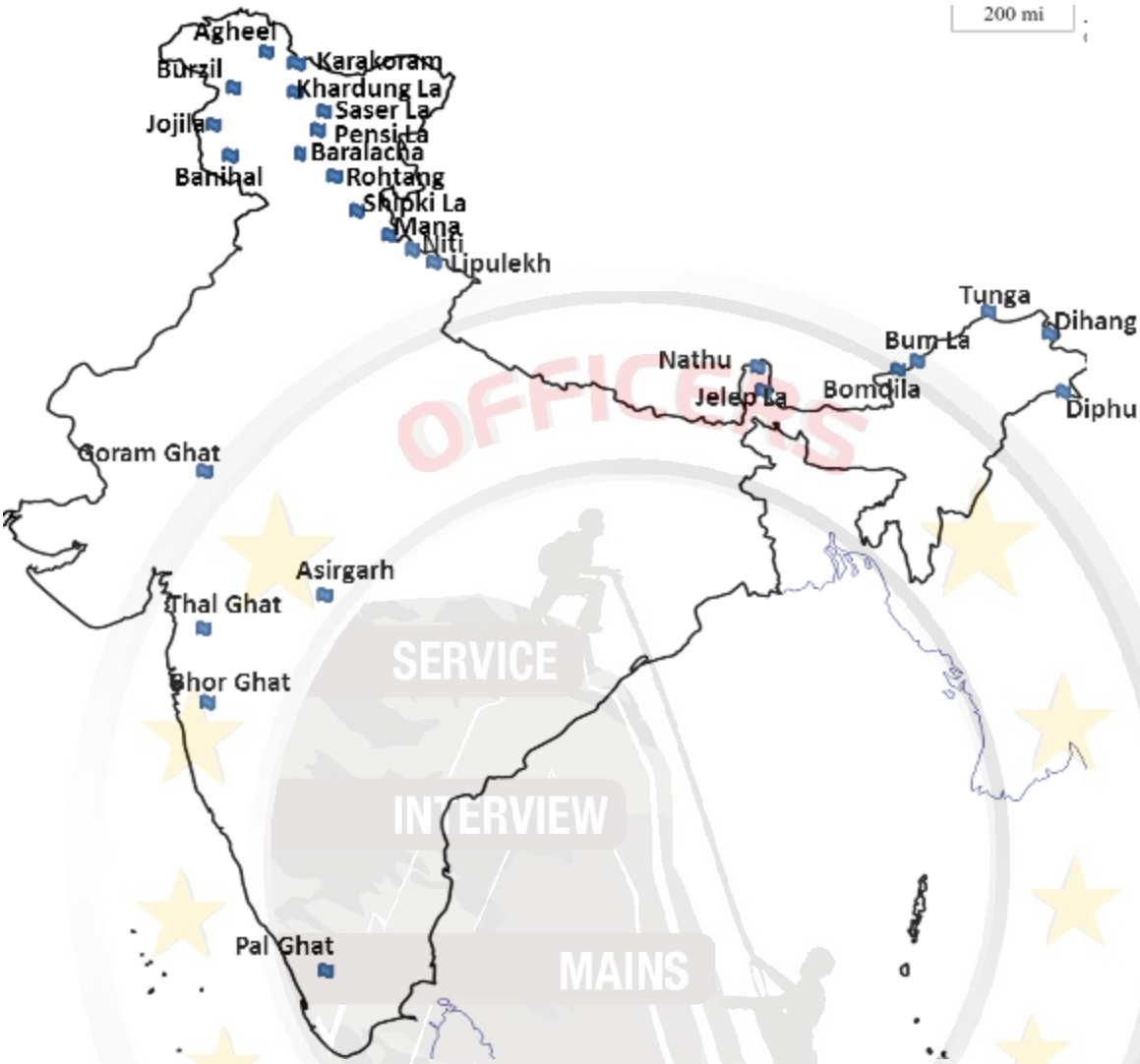
a) Aravalli Hills

b) North Western Mountains

c) Arunanchal Himalayas

d) Darjiling and Sikkim Himalayas.

Solution b



25. Consider the following

1. Javadi Hills
2. Mahendragiri Hills
3. Nallamala Hills

Identify the region concerning above Hills?

a) Central Highlands

b) eastern ghats

c) North-eastern Plateau

d) Eastern Plateau

Correct Answer: B

Map based questions. Javadi hills, MahendraGiri , Nallamala , Eeramala , Palkonda hills are part of Eastern ghats.

26. Consider the following statements about the Aravallis?

1. They are the oldest mountain ranges of India.
2. Aravalli is an example of block mountains.
3. Guru Shikhar is the highest peak of Aravalli range.
4. Aravalli hills lie perpendicular to the direction of monsoon winds causing heavy rainfall in eastern Rajasthan.

Which of the above statements are correct?

a) 1 and 3

b) 2 and 4

c) 1,2 and 3

d) All of the above

Solution (a)

Aravalli range is an old folded mountain range. They lie parallel to the monsoon winds causing no interception hence very little rainfall.

27. The eastern and western coast of Indian peninsula has got contrasting features. Which of the following contrasts are correct about the coastal plains?

1. Eastern coast is an example of submerging coast while western coast is an example of emerging coast.
2. A number of rivers form deltas on the western coast, while it is not true for the eastern coast.
3. As compared to eastern coastal plains, the western coastal plains are much broader.

Select the correct code from the following

a) 1 and 2

b) 2 and 3

c) 1 and 3

d) None of the above

Solution (d)

Western coast is submerging while eastern coast is emerging. Eastern coast is much broader than the western coast. Large rivers make deltas on the eastern coast while rivers flowing towards west forms estuaries.

28. Consider the following statements about the Indian Thar desert

1. The underlying rock structure of desert is the extension of Peninsular plateau.
2. Fluvial erosion is common making mushroom rocks and shifting dunes.
3. Rivers flow in short streams and disappears showing inland drainage.

Which of the above statements are correct?

a) 1 and 2
b) 2 and 3
c) 1 and 3
d) All of the above

Solution (c)

Aeolian (wind) erosion is dominant in this region. Fluvial erosion is due to streams and rivers.

29. Consider the following statements regarding 'Deccan Trap':

1. It is a vast area of basaltic lava plateau.
2. The rocks are stratified into different layers showing multiple events of volcanism.
3. It is an area of large volcanic cones.

Which of the above statements are incorrect?

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

Solution (b)

Basaltic lava has low viscosity and flow rapidly covering large area. It does not make volcanic cones but results into volcanic shields.

30. Consider the following statements regarding Bhabhar plains:

1. It is the northern most tracts of Indian plains lying at the foothills of Siwaliks.
2. It contains fine alluvium deposited by the Himalayan streams.

3. It is very fertile and suitable for cultivation of crops.

Which of the above statements are correct?

a) All of the above

b) 1 only

c) 2 and 3

d) None of the above

Solution: B

Bhabar region lies along the foot of the Siwaliks from the Indus to the Tista. It comprises of pebble-studded rocks in the shape of porous beds. It is due to porosity of the rocks; the streams disappear and flow underground.

31. Consider the following

1. Bhangar
2. Terai
3. Bhabar
4. Khadar

As one travels from the Gangetic plain towards Shiwaliks in the north, the correct sequence of regions he/she will cross is?

a) 1234

b) 1243

c) 4321

d) 4123

Solution (d)

The Bhabar belt — is adjacent to the foothills of the Himalayas and consists of boulders and pebbles which have been carried down by the river streams.

The Terai belt — lies next to the Bhabar region and is composed of newer alluvium.

The Bangar belt — consists of older alluvium and forms the alluvial terrace of the flood plains

The Khadir belt — lies in lowland areas after the Bangar belt.

32. Purvachal or the Eastern hills and mountains comprises

1. Naga Hills
2. Patkai Hills
3. Dafla Hills
4. Lushai Hills

Choose the correct answer from the code given below:

a) 1, 2 and 3 only

b) 1, 2 and 4 only

c) 1 and 2 only

d) 2 and 4 only

Solution (b)

The Purvachal comprises the Patkai hills, the Naga hills, Manipur hills and the Mizo hills.

Dafla hills is in Western Arunachal Pradesh … Not a part of purvanchals.

33. Consider the below statements with regard to Western Ghats and Eastern Ghats:

1. The mean height of the Western Ghats is more than that of Eastern Ghats.
2. The Eastern Ghats do not form a continuous chain like the Western Ghats.

Which of the statements given above is/are correct?

a) 1 only

b) 2 only

c) 1 and 2

d) None

Solution: C

Western Ghats is continuous and can be crossed through passes only. But Eastern Ghats has been divided into several parts by large rivers. Western Ghats average elevation is 900 to 1,100 meters above.

34. Consider the following characteristic features about Bhabar:

1. It contains calcareous deposits locally known as 'Kankar '.
2. Bhabar consists of old alluvial deposits, whereas Khadar consists of new alluvial deposits.

Which of the statements given above is/are correct?

a) 3 only
b) 2 and 3 only
c) 1 and 2 only
d) None
Solution (d)
All the characteristic features provided in the statements is about Bhangar, hence none of the statements are correct with regard to Bhabar.

35. Which among the following is/are mark the extent of Peninsular plateau?
1. Rajmahal hills
2. Gir range
3. Karbi-Anglong
Choose the correct answer from the code given below:
a) 3 only
b) 2 and 3 only
c) 1 and 2 only
d) None
Solution (C)
All the given statements are extensions of peninsular plateau. Delhi ridge in the northwest, (extension of Aravalis), the Rajmahal hills in the east, Gir range in the west and the Cardamom hills in the south constitute the outer extent of the Peninsular plateau.

36. Why Western Ghats in Karnataka receive more monsoon rainfall than Maharashtra and Kerala?
1. Due to continuous topography of the Ghats in Karnataka.
2. Due to the greater width of the mountains in Karnataka.
3. Mountains of Karnataka have very steep slopes.
Choose the correct answer from the code given below:
a) 1 and 2 only
b) 1 and 3 only
c) 1, 2 and 3
d) None

Solution (a)

Western Ghats in Karnataka receive more monsoon rainfall than Maharashtra and Kerala. There are several reasons for this.

First, the mountain topography in Karnataka is broader than the narrow topography of the Ghats in Maharashtra.

Second, the slope of the mountain has a direct bearing on the possibility of precipitation. This is borne out by the Ghats of Karnataka where the mountains are gently sloping, compared to the steep slopes of the Ghats in Maharashtra and Kerala.

Third, the gentle slope provides a greater area for sunlight absorption and heating leading to greater convection when compared with an abrupt slope.

37. Which of the following factors influence the distribution of temperature of ocean water

1. Ocean currents
2. Wind patterns
3. Latitude
4. Unequal distribution of land and water

Options:

A) Only 1 & 2
B) Only 1&3
C) All of the above
D) Only 3&4

1) Solution: C

Explanation:

Factors Affecting Temperature Distribution

The factors which affect the distribution of temperature of ocean water are :

(i) **Latitude** : the temperature of surface water decreases from the equator towards the poles because the amount of insolation decreases poleward

(ii) **Unequal distribution of land and water** : the oceans in the northern hemisphere receive more heat due to their contact with larger extent of land than the oceans in the southern hemisphere.

(iii) **Prevailing wind :** the winds blowing from the land towards the oceans drive warm surface water away form the coast resulting in the upwelling of cold water from below. It results into the longitudinal variation in the temperature. Contrary to this, the onshore winds pile up warm water near the coast and this raises the temperature . (iv) **Ocean currents :** warm ocean currents raise the temperature in cold areas while the cold currents decrease the temperature in warm ocean areas. Gulf stream (warm current) raises the temperature near the eastern coast of North America and the West Coast of Europe while the Labrador current (cold current) lowers the temperature near the north-east 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 temperature than the open seas; whereas the enclosed seas in the high latitudes have lower temperature than the open seas.

38. Consider the following statements:

Statement 1: continental shelf extends from the coastline of a continent to a drop-off point called the shelf break

Statement 2: Plants and algae make continental shelves rich feeding grounds for sea creatures.

Which of the following is correct?

A) Statement 1 Only
B) Statement 2 Only
C) Both Statement 1 & 2
D) Neither Statement 1 & 2

Solution:

1 C

Explanation

A **continental shelf** is the edge of a continent that lies under the ocean. . A continental shelf extends from the coastline of a continent to a drop-off point called the **shelf break**. From the break, the shelf descends toward the deep ocean floor in what is called the continental slope.

Sunlight penetrates the shallow waters in continental shelf, and many kinds of organisms flourish—**from microscopic shrimp to giant seaweed .**

The shelves make up less than 10 percent of the total area of the oceans. Yet all of the ocean's plants and many types of algae live in the sunny waters.

39. Which of the following is not correct regarding tides?

A)High tides help in navigation and fishing

B) Tides are helpful in desilting the sediments and in removing polluted water from river estuaries

C)The tidal bulges on wide continental shelves usually have lesser height.

D) The shape of bays and estuaries along a coastline can magnify the intensity of tides

Solution:

C

Explanation

The tidal bulges on wide continental shelves, have greater height. When tidal bulges hit the mid-oceanic islands they become low.

In the open ocean, the cross-sectional area of water surface is large, and hence the rise in tidal bulge is relatively small. Continental shelves are close to the landmass and are often accompanied with enclosed basins. This limits the cross-sectional area of water. As the moon passes over a shelf or basin, it pulls an equivalent volume of water from open ocean into the basin. Since the cross-sectional area of water in the basin is lower than the open ocean, the tidal bulge has a larger height.

40. **Assertion**: The general movement of the currents in Northern hemisphere is anti - clockwise and in southern hemisphere ,clockwise

Reasoning: This is due to the Coriolis force which is a deflective force

A)Both A and R are true and R is the correct explanation of A.

(b) Both A and Rare true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

Solution:

D

How Earth's Rotation Affects Winds & Currents

Our planet's rotation produces a force on all bodies moving relative to the Earth. Due to Earth's approximately spherical shape, this force is greatest at the poles and least at the Equator.

The force, called the "Coriolis effect," causes the direction of winds and ocean currents to be deflected.

In the Northern Hemisphere, wind and currents are deflected toward the right, in the Southern Hemisphere they are deflected to the left.

41. Consider the following statements with respect to salinity of ocean water

1. Salinity, generally, decreases with depth and there is a distinct zone called the **halocline** (compare this with thermocline), where salinity decreases sharply.
2. The ocean currents are one of the important factors in determining the salinity of an area

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Solution:

B

Salinity, generally, increases with depth and there is a distinct zone called the **halocline** (compare this with thermocline), where salinity increases sharply .

42. Wind, also influences salinity of an area by transferring water to other areas

Which of the following statements are **not true** regarding oceans?

1) Waves are actually the energy, not the water as such, which moves across the ocean surface.
2) The actual movement of water beneath the waves is in a straight parallel line
3) The largest waves are found in the open oceans
4) The vertical motion in the ocean water bodies is referred to the waves

Options

a)1 and 4

b)2 and 4

c)2 and 3

d)1 and 3

Ans:b

1) Waves are actually the energy, not the water as such, which moves across the ocean surface.

2) The actual motion of the water beneath the waves is circular

3) The largest waves are found in the open oceans

4) The horizontal motion refers to the ocean currents and waves

43. Which of the following are favourable conditions for coral reefs formation

1)Presence of cold current

2)Shallow water

3)Salt free water

4)sediment free water

5)moving ocean water

options

A)2, 3 and 5

B)1, 3 and 4

C)2,4 and 5

D)2,3,4 and 5

Ans:C

Favourable Condition:

1)Presence Of warm currents. Coral reefs do not flourish in cold currents due to upwelling of cold water from the depths that cool the warm surface water which disturbs the ideal temperature for coral reef formation(water temperature should not fall below 20 degree celcius).

2)Depth of water should not exceed 180 feet. This is essential for adequate supply of sunlight for photosynthesis which in turn is essential for survival of microscopic algae on which coral polyps depend upon.

3)saltish water

4)sediment free water

5)Moving water to bring in abundant supply of oxygenated water and food in the form of microscopic organisms. Hence corals are best developed on the seaward side of the reefs

44. Recently cabinet approved signing of contract between India and International seabed authority for the exploration of which mineral in the Indian ocean?

APetroleum

B)Polymetallic Sulphides

C)Shale gas

D)Rare Earth minerals

Ans: B

Recently cabinet approved signing of contract between India and International seabed authority for the exploration of which mineral in the Indian ocean?

Ans: Poly metallic sulphides

45. Which of the following are not true regarding trenches?

1) These areas are the deepest parts of the oceans.
2) They are associated with active volcanoes.
3) They are not associated with strong earthquakes.
4) There are no trenches in the Indian Ocean

Options

a)1 only

b)2 and 3 only

c)3 and 4 only

d)1 and 4 only

1)Ans:C

Ocean Trenches or Ocean deeps are the deepest parts of the oceans.The trenches are relatively steep sided, narrow basins. They are some 3-5 km deeper than the surrounding ocean floor. They occur at the bases of continental slopes and along island arcs and are associated with active volcanoes and strong earthquakes. That is why they are very significant in the study of plate movements. As many as 57 deeps have been explored so far; of which 32 are in the Pacific Ocean; 19 in the Atlantic Ocean and 6 in the Indian Ocean.

They are associated with strong earthquakes as there is scrapping of the oceanic crust along the subducting zone.

46. Wave Energy plant in India is located in which Place?

a)Srikakulam in AndraPradesh

b) Gulf of cambay bordering gujarath

c)Chandipur in Odisha

d)Vizhinjam in Kerala

2)**Ans:D**

47. Which of the following are true about mid oceanic ridges?

1)Mid-ocean ridge is an underwater mountain system .

2)They have valleys known as rifts .

3)The mid oceanic ridges has a spreading center.

4)They are formed at divergent plate boundary.

Options:

a) 1 and 2 only

b) 1 and 4

c) 1,2 and 4

d) All the above

Ans D

A mid-ocean ridge is an underwater mountain system formed by plate tectonics. It consists of various mountains linked in chains, typically having a valley known as a rift running along its spine. This type of oceanic mountain ridges is the characteristic of what is known as an oceanic spreading center, which is responsible for seafloor spreading. A mid-ocean ridge demarcates the boundary between two tectonic plates, and consequently is termed a divergent plate boundary

48. Ocean currents : Desert formation

Humboldt Namib desert

Benguela Atacama desert

California Mohave desert

Which of the following pairs are **not correctly** matched?

A) Only 1

B) Only 3

C) Only 2 &3

D) Only 1 & 2

Solution: D

Humboldt – Atacama

Benguela – Namib desert

California – Mohave desert

49. Consider the following statements regarding tides:

statement 1: When the sun, the moon and the earth are in a straight line, the height of the tide will be higher. These are called neap tides

Statement 2: The time between the high tide and low tide, when the water level is falling, is called the ebb.

Which of the statements given above is / are correct?

A) Only 1

B) Only 2

C) Both 1 & 2

D) Neither 1 nor 2

Solution: B

When the sun, the moon and the earth are in a straight line, the height of the tide will be higher. These are called spring tides

Neap tides : Normally, there is a seven day interval between the spring tides and neap tides. At this time the sun and moon are at right angles to each other and the forces of the sun and moon tend to counteract one another.

The time between the high tide and low tide, when the water level is falling, is called the ebb. The time between the low tide and high tide, when the tide is rising, is called the flow or flood.

50. Consider the following statements :

1. Metallic minerals are usually found in igneous and metamorphic rocks that forms large plateaus.
2. Non metallic minerals are generally found in Sedimentary rock formations of plains and young fold mountains.

a) 1 only

b) 2 only

c) Both 1 and 2
d) None of the above

Answer: C

Explanation: Iron-ore in north Sweden, copper and nickel deposits in Ontario,Canada, iron, nickel, chromites and platinum in South Africa are examples of minerals found in igneous and
metamorphic rocks. Sedimentary rock formations of plains and young fold mountains contain non-metallic minerals like limestone.

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51. Regarding cyclones, which of the following is correct?

1)The Arabian Sea usually experiences larger number of cyclones than Bay of Bengal side.

2)The relatively colder waters of Arabian Sea are relatively less conducive for the formation of cyclones.

Options

A) 1 only
B) 2 only
C) Both 1 and 2
D) Neither 1 nor 2

Solution- b)

Cyclones are known to originate in both the Bay of Bengal and the Arabian Sea sides of the northern Indian Ocean but the Bay of Bengal side witnesses four times more cyclones than the Arabian Sea side on average

Following are reasons:

• The relatively colder waters of the Arabian Sea are not conducive to the formation and intensification of cyclones.

• The eastern coast of India receives cyclones that form not just in the Bay of Bengal, mostly around the Andaman Sea near the Andaman and Nicobar Islands, but also those travelling from the Pacific Ocean, where the frequency of 'typhoons', as these are

called there, is quite high (about 35 % of the global annual average).

• Most of these cyclones weaken considerably after encountering a big landmass. Therefore, these do not travel to the Arabian Sea side.

• The western coast of India thus witnesses only those cyclones that originate locally or the ones, like Ockhi, that travel from the Indian Ocean near Sri Lanka.

52. Regarding naming of cyclones, choose the correct option.

1) Cyclones originating in the North Indian Ocean basin between 45°E-100°E are named by the Indian Meteorological Department (IMD).
2) The naming of cyclones was started in 2000 by the World Meteorological Organisation (WMO) and the United National Economic and Social Commission for Asia and the Pacific (ESCAP).

Options

A) 1 only
B) 2 only
C) Both 1 and 2
D) Neither 1 nor 2

Solution –c)

Naming the Cyclone

• Cyclones, hurricanes and typhoons are usually named for the benefit of easy communication between forecasters and the public.

• The naming of cyclones was started in 2000 by the World Meteorological Organization (WMO) and the United National Economic and Social Commission for Asia and the Pacific (ESCAP).

• Nine regions are responsible for the nomenclature namely — North Atlantic, South Atlantic, Eastern North Pacific, Central North Pacific, Southern Pacific, Western North Pacific, North Indian Ocean, South West Indian Ocean. Each regional body has its own rules in naming cyclones.

• In most regions pre-determined alphabetic lists of alternating male and female

names are used.

• Cyclones originating in the North Indian Ocean basin between 45°E-100°E are named by the Indian Meteorological Department (IMD).

• South Asian countries surrounded by the Indian Ocean such as Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand had submitted eight names each (in above sequence).

• These 64 names are used in sequence and the names of significant tropical cyclones are retired.

• The first tropical cyclone was named 'Onil' by Bangladesh in 2004. Ockhi has been named by Bangladesh. In Bengali, 'Ockhi' means eye.

• The next cyclone has already been named by India as 'Sagar'.

53. Match the following

1) Rocky mountains a) Australia
2) Andes. b) North America
3) Atlas. c) South America
4) Great diving range d) Africa

Options

A) 1-b, 2-a, 3-d, 4-c
B) 1-c, 2-a, 3-b, 4-c
C) 1-b, 2-c, 3-d, 4-a
D) 1-d, 2-b, 3-c, 4-d

answer- c)

Andes is worlds longest mountain range runs through its length from north to south in South America. Rocky Mountains is in North America. The atlas mountain is located in north west Africa and great diving range in Australia.

54. Which of the following is correct?

1) The isthmus is a narrow passage connecting two large water bodies like seas and oceans.
2) Strait is a narrow strip of land joining two land masses.

Options

A) 1 only

B) 2 only

C) Both 1 and 2

D) Neither 1 nor 2

Answer- d)

An isthmus is a narrow piece of land connecting two larger areas across an expanse of water by which they are otherwise separated. Example is isthmus of Panama.

A strait is a narrow passage of water connecting two large water bodies like seas or oceans. Example is strait of Gibraltar.

55. Regarding the salinity patterns of world, which of the following is correct?

A) Salinity of greater depths of oceans keep varying due to swift movement of water.

B) The Mediterranean Sea records high salinity due to high evaporation

C) Black Sea records low salinity due to fresh water influx from glaciers

D) Maximum salinity is recorded near equator due to higher evaporation rate.

Answer- b)

Salinity is the term used to define the total content of dissolved salts in sea water.It is calculated as the amount of salt (in gm) dissolved in 1,000 gm (1 kg) of seawater.It is usually expressed as parts per thousand or ppt.Salinity of **24.7 (24.7 o/oo)** has been considered as the upper limit to demarcate **'brackish water**

Factors affecting salinity:

1)The salinity of water in the surface layer of oceans depend mainly on **evaporation and precipitation.**

2)Surface salinity is greatly influenced in coastal regions by the **fresh water flow** from rivers, and in polar regions by the processes of freezing and thawing of ice.

3)Wind, also influences salinity of an area by transferring water to other areas.

4)The ocean currents contribute to the salinity variations.

5)Salinity, temperature and density of water are interrelated. Hence, any change in the temperature or density influences the salinity of an area.

Patterns of salinity:

- **The North Sea**, in spite of its location in higher latitudes, records higher salinity due to more saline water brought by the North Atlantic Drift.

- **Baltic Sea** records low salinity due to influx of river waters in large quantity.
- The **Mediterranean Sea** records higher salinity due to high evaporation.
- Salinity is, however, very low in **Black Sea** due to enormous fresh water influx by rivers.
- Higher rate of salinity near the tropics than equator due to high evaporation and even higher precipitation(conventional rainfall).

56. In context of addressing Himalayas as "Climate divide " of Indian Sub continent ,which of the following is right?

i) Provides an invincible shield to protect the Sub-continent from the cold northern winds.

ii)It traps the monsoon winds, forcing them to shed their moisture within the subcontinent.

Choose the appropriate option

a)ionly

b)ii only

c)Both i& ii

d)Neither I nor ii

Solution c

The lofty Himalayas in the north along with its extensions act as an effective climatic divide. The towering mountain chain provides an invincible shield to protect the subcontinent from the cold northern winds. These cold and chilly winds originate near the Arctic circle and blow across central and eastern Asia. The Himalayas also trap the monsoon winds, forcing them to shed their moisture within the subcontinent.

57. Which of the following are true regarding ITCZ with respect to India?

i) The Inter Tropical Convergence Zone (ITCZ) is a high pressure zone located at the equator where trade winds converges.

ii) In the month of July, the ITCZ is located over the Gangetic plain.

Choose the appropriate option

a)ionly

b)ii only

c)Both i& ii

d)Neither I nor ii

Solution b

ITCZ is low pressure zone of convergence.

The ITCZ follows the sun in that the position varies seasonally. It moves north in the Northern Hemisphere summer and south in the Northern Hemisphere winter. Therefore, the ITCZ is responsible for the wet and dry seasons in the tropics. So during the month of July ie after summer solstice ITCZ will be over the Gangetic plains (20 -25 degree North) .

58. Which of the following shall be held responsible for intensity of rainfall over the west coast of India

(i) The offshore meteorological conditions.

(ii) The position of the equatorial jet stream along the eastern coast of Africa.

iii) Western ghats lying parallel to South west monsoon winds.

Choose the appropriate option

a)I,ii only

b)ii,iii only

c)I,iii only

d)All of the above.

Solution a

Western ghats doesn't lye parallel to South west monsoon winds, it is oblique to to South west monsoon wind direction that is the reason it is responsible for bringing convectional type of rainfall in Western coast.

59. Which of the following are true regarding El-nino& Indian Monsoon?

i) Moisture and heat content gets limited in Indian Ocean region and results in reduction and uneven distribution of rainfall across the Indian sub-continent.

ii) . El Nino is a climatic phenomenon in the Indian ocean

Choose the appropriate option

a) i only

b)ii only

c) Both i and ii

d) None of the above

Solution A

In the phenomenon of El-Nino warming of the Pacific Ocean results in weakening of these winds. Therefore, moisture and heat content gets limited and results in reduction and uneven distribution of rainfall across the Indian sub-continent**. It is a phenomenon in Pacific ocean & not in Indian Ocean**.

60. Which of the following are correctly matched based on Koppen scheme of classification on Indian Topography?

i)Amw – West Coast of India.

ii)Aw – Peninsular plateaus

iii)Bwhw – Extreme Western Rajasthan.

iv)Cwg – Gangetic plains.

Choose the appropriate option.

a)I,iii only

b)I,ii only

c)I,iii,iv only

d)All the above.

Solution d

Amw Monsoon with short dry season West coast of India south of Goa

As Monsoon with dry summer Coromandel coast of Tamil Nadu

Aw Tropical savannah Most of the Peninsular plateaus, south of the Tropic of Cancer

Cwg Monsoon with dry winter Ganga plain, eastern Rajasthan, northern Madhya Pradesh

61. Which of the following is the impact of Monsoon on Indian Economy.?

i) Agricultural prosperity of India depends very much on timely and adequately distributed rainfall.

ii) Winter rainfall by temperate cyclones in north India is highly beneficial for Rabi crops.

Choose the appropriate option

a)ionly

b)ii only

c)Both i& ii

d)Neither I nor ii

Solution c

Monsoon has many impacts on Indian economy. Few to mention are

- Regional variations in monsoon climate help in growing various types of crops.
- Variability of rainfall brings droughts or floods every year in some parts of the country.
- Agricultural prosperity of India depends very much on timely and adequately distributed rainfall. If it fails, agriculture is adversely affected particularly in those regions where means of irrigation are not developed.
- Sudden monsoon burst creates problem of soil erosion over large areas in India.

62. Which of the following are important rivers along the Eastern frontiers of Himalayas?

i)Kameng

ii)Subansiri

iii)Dihang

iv)Lohit

Choose the appropriate option

a)ionly

b)I,ii,iv only

c)I,iii only

d)All of the above.

Solution d

All the above the rivers are important rivers along Eastern Himalayas. Eastern Himalayas also include Purvanchal into it.

63. Which is the important river flowing through Manipur as well As Mizoram?

a)Barak

b)Lohit

c)Brahmaputra

d)Dihang

Solution a

Barak is the river flowing through both Manipur as well as Mizoram. Recent flooding along his river has brought into prominence

64. Which of the following are Physiographic features that you can find in Peninsular plateau?

i)Block Mountains

ii)Series of rocky hills

iii)Wall like quartzite dykes.

Choose the appropriate code.

a)I,iionly

b)ii,iii only

c)I,iii only

d)I,ii,iii

Solution d

Some of the important physiographic features of Peninsular plateau region are tors, block mountains, rift valleys, spurs, bare rocky structures, series of hummocky hills and wall-like quartzite dykes.

65. Consider the following regarding Peninsular plateaus.

i)Peninsular plateau has undergone recurrent phases of upliftment and submergence accompanied by crustal faulting and fractures.

ii)Bhima fault is known for its recurrent seismic activities.

Which of the following is true?

a)ionly

b)ii only

c)Both i& ii

d)Neither I nor ii

Solution c

Peninsular plateau has undergone recurrent phases of upliftment and submergence accompanied by crustal faulting and fractures. (The Bhima fault needs special

mention, because of its recurrent seismic activities). These spatial variations have brought in elements of diversity in the relief of the Peninsular plateau.

66. Which of the following are true regarding Central Highlands ?

i)It is a classic example of the relict mountains which are highly denuded and form discontinuous ranges.

ii)This region has undergone metamorphic processes in its geological history.

Which of the following is true?

a)ionly

b)ii only

c)Both i& ii

d)Neither I nor ii

Solution c

Central Highlands are known for their relict Mountain features and have gone through metamorphic process in the geological time scale.

67. Consider the following regarding Andaman & Nicobar islands?

i)These islands receive convectional rainfall and have an equatorial type of vegetation.

ii)TheAndaman and the Nicobar are separated by the 8 degree channel.

Which of the following is true?

a)ionly

b)ii only

c)Both i& ii

d)Neither I nor ii

Solution :a

Option 1 is right, However the Andaman and the Nicobar are separated by a water body which is called the ten degree channel.

68. In which of the following states is Loktak lake situated?

(a) Kerala

(b) Uttarakhand

c) Manipur

(d) Rajasthan

Solution c

Loktak Lake is known for it's Floating Biodiversity is located in Manipur.

69. Which of the following are the features that can be seen in the path of Himalayan rivers in it'syouth stage?

i)Deep gorges

ii)V-shaped valleys

iii)Rapids

iv)Flood plains.

Choose the appropriate option

a)I,ii,iii only

b)I,iii,iv only

c)I,iv only

d)I,iii only

Solution a

Flood plains are formed only in stages after reaching plains. In the mountainous course the river will have erosional features. Flood plain is a depositional feature of river.

70. Why Peninsular rivers rarely form meanders.?

1. Hard rock surface of peninsular regions.
2. Non-alluvial character of plateau
3. High erosional capacity of rivers

Select the correct answer using the codes given below.

a) 1 and 2 only

b) 1 and 3 only

c) 2 and 3 only

d) 1, 2 and 3

Solution a

Peninsular rivers have lower erosional capacity, but because of hard rock surface in the region and non-alluvial character of plateau, they travel almost straight and thus do not form meanders.

Peninsular rivers (mostly east flowing rivers) forms DELTA, but meandering is pretty less. The reasons may be as follows…

- Non –perenial rivers
- Hard surface rocks when compared to Northern plains.

The northern Himalayan rivers have comparatively higher erosional capacity.

71. Consider the following comparison of Himalayan rivers and peninsular rivers. Which of the following is incorrect.?

i)Himalayan rivers are Antecedent and consequent leading to dendritic pattern in plains, Whereas peninsular rivers are Super imposed, rejuvenated resulting in trellis, radial and rectangular patterns.

ii)Himalayan rivers have relatively smaller basin , whereas peninsular rivers have very large basins.

Choose the appropriate option.

a)ionly

b)ii only

c)Both I & ii

d)Neither I nor ii

Solution b

All Himalayan rivers are Antecedental in nature and consequent . Thus it leads to dendritic pattern in plains. Dentritic drainage pattern leads to tree like pattern formation with tributaries as well distributaries.

Himalayan rivers have relatively very large basin , whereas peninsular rivers have small basins. This is because of Longer length of the Himalayan rivers and the Topography of the northern plains.

72. 1.According to Geo-morphological setup in India earthquakes are associated with

i)Volcanic eruption

ii)Landslides

iii) Subsidence in the mining areas

iv)Impounding of dams and reservoirs.

Choose the appropriate code

a)I,iii only

b)I,ii,iii only

c)ii,iii only

d)I,ii,iii,iv.

Solution d

The following are the top ten reasons for Earthquakes in India.

1 Volcanic activity

Exploding volcanoes release tremendous energy which offsets the Earth's crust. This is the reason many earthquakes happen in and around volcanic regions. Earthquakes happening due to volcanic eruptions are called volcanic earthquakes.

2 Folding and faulting

When a fracture occurs in the plane on which the Earth's crust resides, an earthquake can happen. This type of earthquake is caused either by vertical or horizontal displacements. The movement of rocks along these fractures causes the movement of earth's crust.

3 Plate tectonics

The Earth's surface is comprised of plates. These plates are always moving. When these plates move, their margins become sites of earthquakes. That is why earthquakes are found to be frequent in plate boundaries.

4 Nuclear bombs

Human beings test nuclear bombs underground. The explosion releases shock waves. This situation can cause a minor earthquake. The overlying rocks become unstable. They shift their position. It induces a mass chain reaction of shifting rocks.

5 Construction activities

Blasting of rocks for construction work is common. Rocks are needed for construction. Blasts release energy and render the Earth's crust unstable. In mountainous regions, rocks that were lying for millions of years could shift. A small shift releases outward energy that renders the whole region unstable. In this event, an earthquake happens.

6 Underground mining

Deep underground mining creates big gaps beneath the Earth's surface. This does not do much for the stability of the Earth's upper layer. Also, mining involves the use of explosives and bombs to blast open rocks. Similar to nuclear bombs, and construction related bombs, explosions for mining release shock waves.

7 Dams and reservoirs

Water held in dams and reservoirs exerts tremendous pressure on the ground surface. The ground surface spreads this pressure across to sustain itself. This is a natural phenomenon. But over a period of time, water disturbs the equilibrium of the Earth's surface. The pressure could build up in a way so as to produce mild tremors. Over a period of time, a full-fledged earthquake can happen.

8 Landslides

Avalanches and landslides disturb the equilibrium of the Earth's crust. They cause the Earth's crust to send shock waves as a means to release and distribute energy. Landslides exert tremendous force on the Earth's crust, which can even cause a full-blown plate movement several kilometers below the Earth's crust.

9 Injecting liquid waste into the ground

In many parts of India, certain industries inject waste into the ground's surface as a means of disposal. This process causes instability of the Earth's crust and could lead to earthquakes.

10 Creating high rise buildings on inappropriate land

The creation of high rise buildings on land that is not capable of withstanding such pressure can cause Earthquakes.

73. With reference to India tectonic plate which of the following is true?

i) Continued growth in the Himalayas is likely due to the Indian tectonic plate still moving slowly but surely northward.

ii) India was a large island situated off the Australian coast, in a vast ocean.

Choose the appropriate code

a)i only

b)ii only

c)Both I & ii

d)Neither I nor ii

Solution c

India was a large island situated off the Australian coast, in a vast ocean.

The Tethys Sea separated it from the Asian continent till about 225 million years ago.

India is supposed to have started her northward journey about 200 million years ago at the time when Pangaea broke.

India collided with Asia about 40-50 million years ago causing rapid uplift of the Himalayas.

The positions of India since about 71 million years till the present are shown in the Figure. It also shows the position of the Indian subcontinent and the Eurasian plate.

About 140 million years before the present, the subcontinent was located as south as 50◦ S. latitude. The two major plates were separated by the Tethys Sea and the Tibetan block was closer to the Asiatic landmass.

The subduction zone along the Himalayas forms the northern plate boundary in the form of continent — continent convergence.

In the east, it extends through Rakinyoma Mountains (Arakan Yoma) of Myanmar towards the island arc along the Java Trench. The eastern margin is a spreading site lying to the east of Australia in the form of an oceanic ridge in SW Pacific.

The Western margin follows Kirthar Mountain of Pakistan. It further extends along the Makrana coast (Pakistan and Iranian coasts) and joins the spreading site from the Red Sea rift (Red Sea rift is formed due to divergence of Somali plate and Arabian plate) southeastward along the Chagos Archipelago (Formed due to hotspot volcanism).

The boundary between India and the Antarctic plate is also marked by oceanic ridge (divergent boundary) running in roughly W-E direction and merging into the spreading site, a little south of New Zealand.

74. 3.Which of the following are true regarding the tectonic plate movement of Indian landmass.?

i) Around 220 million years ago, around the time that Pangea was breaking apart, India started to move northwards.

ii) Part of the Indian landmass began to go beneath the Asian plate, moving the Asian landmass up, which resulted in the rise of the Himalayas.

Choose the appropriate code

a)i only

b)ii only

c)Both I & ii

d)Neither I nor ii

Solution c

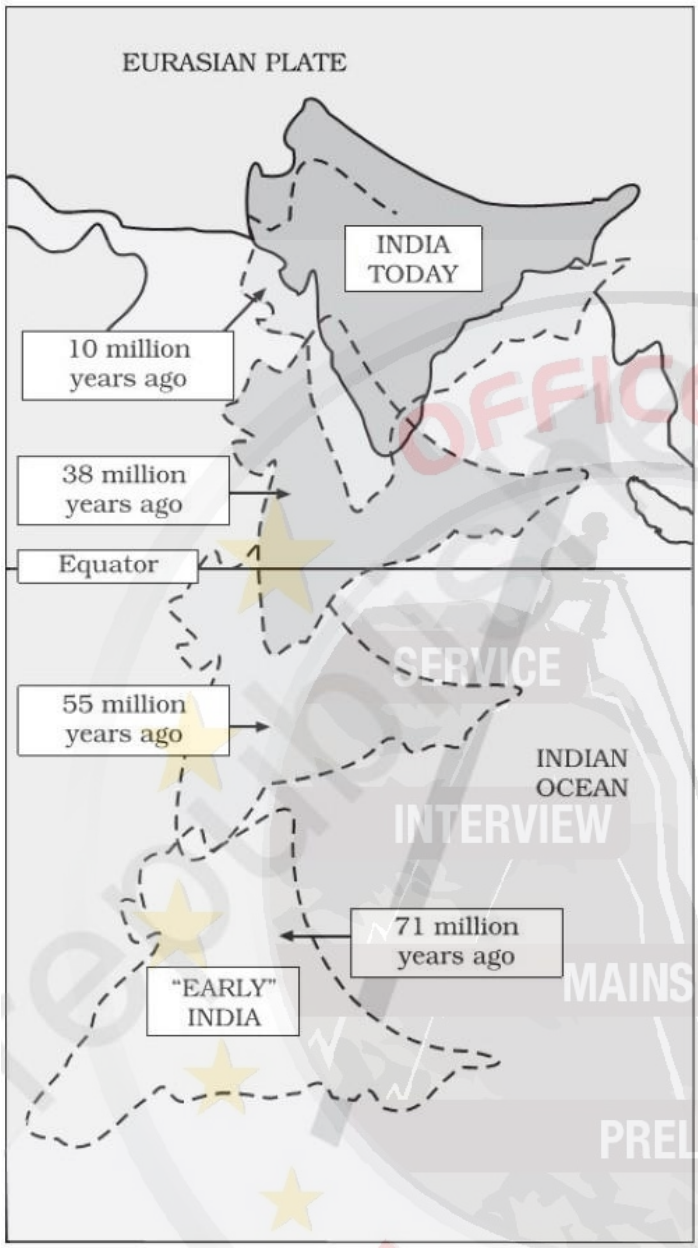


Figure 4.6 : Movement of the Indian plate

75. Which one of the following is the type of plate boundary of the Indian plate along the Himalayan mountains?

a)Ocean-continent convergence
b)Divergent boundary
c)Transform boundary
d)Continent-continent convergence.
Solution d
Two lithospheric plates collide against each other . The zone of collision may undergo crumpling and folding and folded mountains may emerge. This is an orogenic collision. Himalayan Boundary Fault is one such example.

76. Consider the following about rock systems of India.
i) Cuddapah rock system consist of sandstones and limestones deposited in synclinal basin.
ii)Cuddapah rock system is part of Purana Rock system.
Which of the following are true.
Choose the appropriate code
a)i only
b)ii only
c)Both I & ii
d)Neither I nor ii
Solution c
Purana Rock System (1400 – 600 Million Years)
Includes two divisions: the Cuddapah System and the Vindhyan System.
Cuddapah System
Unfossiliferous clay, slates, sandstones and limestones was deposited in synclinal basins [depression between two folds {Fold mountain}]. Outcrops best observed in Cuddapah district of Andhra Pradesh. These rocks contain ores of iron, manganese, copper, cobalt, nickel, etc. They contain large deposits of cement grade limestones.
Vindhyan System (1300-600 million years)

This system derives its name from the great Vindhyan mountains.The system comprises of ancient sedimentary rocks (4000 m thick) superimposed on the Archaean base.

Mostly Unfossiliferous. Large area of this belt is covered by the Deccan trap.

The Vindhayan system have diamond bearing regions from which Panna and Golconda diamonds have been mined. It is devoid of metalliferous minerals but provides large quantities of durable stones, ornamental stones, limestone, pure glass making sand.

77. In the context of Himalayas, what do you mean by "Bugyals"?

(a) Bugyals are the tribes who migrate to grasslands in winter.

(b) Bugyals are the summer grasslands in the higher reaches.

(c) Bugyals are the nomadic group that leads all other groups in the Himachal Himalayas region.

(d) None of the above.

Solution:

(b)

Exp: In the Great Himalayan range of the Himachal and Uttarakhand Himalayas, the valleys are mostly inhabited by the Bhotia's. These are nomadic groups who migrate to 'Bugyals' (the summer glasslands in the higher reaches) during summer months and return to the valleys during winters.

78. The Nilgiris along the west coast are relatively tectonically stable as compared to the Himalayas; but, still, debris avalanches and landslides occur though not as frequently as in the Himalayas, in these hills. Why?

1. Many slopes are steeper with almost vertical cliffs and escarpments in the Western Ghats and Nilgiris.

2. Mechanical weathering due to temperature changes and ranges is pronounced in this region.

3. They are mostly made up of sedimentary rocks and unconsolidated and semiconsolidated deposits.

4. They receive heavy amounts of rainfall over short periods.

Codes:
(a) 1, 2 and 3
(b) 2, 3 and 4
(c) 1, 2 and 4
(d) 1 and 4
Solution:
(c)
Exp: The debris avalanches and landslides occur very frequently in the Himalayas because the Himalayas are tectonically active. They are mostly made up of sedimentary rocks and unconsolidated and semi-consolidated deposits.

The slopes are very steep.
Compared to the Himalayas, the Nilgiris bordering Tamil Nadu, Karnataka, Kerala and the Western Ghats along the west coast are relatively tectonically stable and are mostly made up of very hard rocks;

but, still, debris avalanches and landslides occur though not as frequently as in the Himalayas, in these hills. Why? Many slopes are steeper with almost vertical cliffs and escarpments in the Western Ghats and Nilgiris. Mechanical weathering due to temperature changes and ranges is pronounced. They receive heavy amount of rainfalls over short period

79. Which of the following is true regarding global isotherms?

1. Isotherms of southern hemisphere are more regular and straight as compared to that of northern hemisphere.
2. In January the isotherms deviate to the north over the ocean and to the south over the continent in the Northern Hemisphere.

Codes:

(a) Only 1

(b) Only 2

(c) Both

(d) None

Solution:

(c)

Exp: The Isotherms are lines joining places having equal temperature. Isotherms of southern hemisphere are more regular and straight as compared to that of northern hemisphere because southern hemisphere has very low land by ocean proportion.

In January the isotherms bend towards pole in northern hemisphere because in northern winters, temperature greatly

reduces from equator to polar regions.

80. The Himalayan mountain ranges run in a west-east direction from the Indus to the Brahmaputra. Which of the following is 'incorrect' with reference to the Himalayas?

(a) The altitudinal variations are greater in the eastern part of the Himalayas than those in the western part.

(b) Beyond the Kali Gandaki gorge, the Himalayas bend sharply to the south and spread along the eastern boundary of India.

(c) The Kali and Tista rivers demarcate the Nepal Himalayas and the part lying between Tista and Dihang rivers is known as Assam Himalayas.

(d) The Purvachal hills and mountains running through the north-eastern states are mostly composed of sedimentary rocks.

Solution:

(b)

Exp: Beyond the Dihang gorge, the Himalaya bend sharply to the south and spread along the eastern boundary of India.

81. Consider the following statements regarding River Chenab:

1. Source of this river is Bara lacha pass.
2. It is the largest tributary of river Indus.
3. The waters of Chenab were allocated to Pakistan under the terms of the Indus Water Treaty.

4. River Chandra is an upper tributary of river Chenab.

Which of the above statements are true?

(a) 2 and 4

(b) 3 and 4

(c) 1, 2 and 4

(d) All

Solution:

(d)

Exp: The Chenab is the largest tributary of the Indus. It is formed by two streams, the Chandra and the Bhaga, which join at Tandi near Keylong in Himachal Pradesh. Hence, it is also known as Chandrabhaga. The river flows for 1,180 km before entering into Pakistan.

82. Which of the following river is not a west flowing river?

(a) Kalinadi

(b) Palar

(c) Bharathapuzha

(d) Dhandhar

Solution:

(b)

Exp: River Palar is an east flowing river. It rises in Nandi Hills, India in Kolar district of Karnataka state, and flows 93 kilometres (58 mi) in Karnataka, 33 kilometres (21 mi) in Andhra Pradesh and 222 kilometres (138 mi) in Tamil Nadu before its confluence into the Bay of Bengal at

Vayalur about 100 kilometres (62 mi) south of Chennai.

83. Which of the following characteristics are associated with ITCZ?

1. It is a convergence zone of sub-tropical easterlies and sub-tropical westerlies.

2. Shift of the ITCZ is a pre-requisite for onset of monsoon in India.

Codes:

(a) 1 only

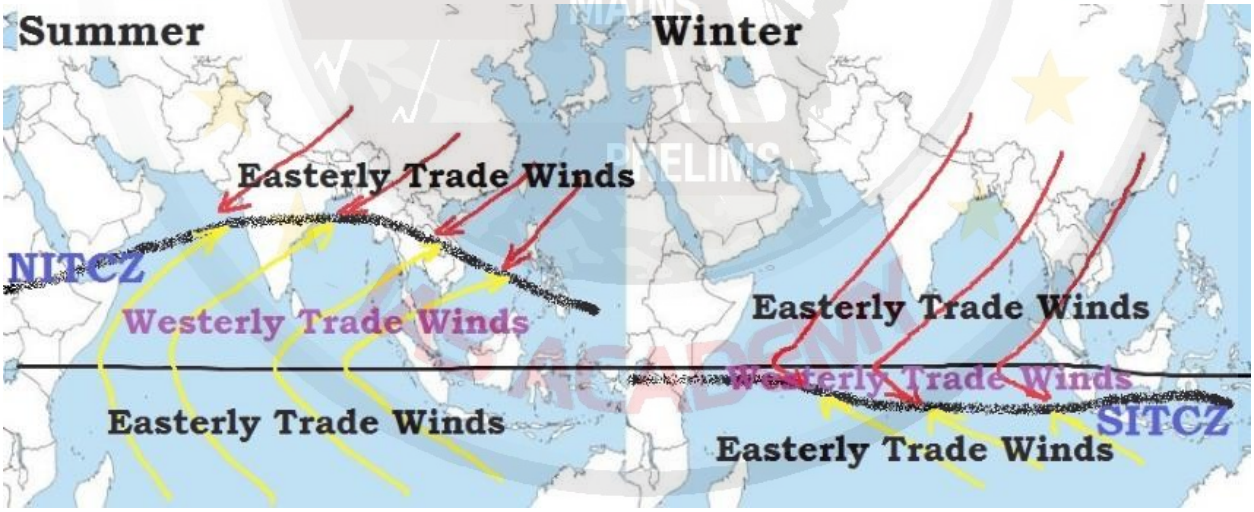
(b) 2 only

(c) Both

(d) None

Solution:

B



Exp: The trade winds from the Northern and Southern Hemispheres converge into a narrow belt close to the equator, nowadays

generally referred to as the Intertropical Convergence Zone (ITCZ). The convergence of the trade winds results in rising motion of the colliding air masses . This region is also known as the doldrums, where the weather is generally cloudy and periods of light winds are frequently interrupted by squalls and hard rain, making for a troubled and uncertain sea voyage. Shift of the ITCZ will create low pressure in northern India and will drag the south-west monsoon towards Indian's mainland. Hence shift of ITCZ is prerequisite for monsoon.

84. Consider the following statements:

1. These regions have a mean monthly temperature which remains always around 26 ºC with little variation and no winters.
2. These regions record the heaviest rainfall on this planet with over 200 centimeters which is well distributed throughout the year.
3. Due to substantial heat the mornings are bright and sunny with high evaporation.
4. These regions receive heavy convectional rain in the afternoon from the towering cumulonimbus clouds.

The above features are of which type of climate?

(a) Humid Sub-tropical climate

(b) Equatorial Climate

(c) Tropical Savanna Climate

(d) None

Solution: b

85. Consider the following statements related to the Monsoon in India:

1. Tamil Nadu receives rain during winters because it is situated parallel to the Bay of Bengal branch of S-W monsoon.
2. Monsoon Rainfall in India is governed by relief or topography of the region.
3. Monsoon Rainfall has a declining trend with increasing distance from the sea.

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

(a) Only 1

(b) 2 and 3

(c) 1 and 3

(d) All

Solution: d

86. Which of the following statement(s) is/are true regarding DUARS?

1. Duars are the floodplains and foothills of the eastern Himalayas around Bhutan.
2. Duars are famous for tea gardens and Orchids.
3. Teesta and Sankosh River flows through it.

Codes:

(a) 1 and 3

(b) 2 and 3

(c) 1 and 2

(d) All

Solution: d

Soils which are formed in areas where mountains end and plains starts are called "Duars". Duars are strips of gravelly Bhabhar and Tarai lands in between West Bengal and Assam. Duars are known for tea cultivation.

87. Consider the following statements related to the features of cold front:

1. The stable cold front forms cumulonimbus clouds.
2. As the cold front approaches, the atmospheric pressure drops.

Which of the above stated characteristics is/ are correct?

(a) Only 1
(b) Only 2
(c) Both
(d) None

Solution:

(b)

Exp: If the cold front is highly unstable, cumulonimbus clouds producing thunderstorms commonly form along the front.

88. Which of the following factors play a role in strengthening Indian Monsoon?

1. El Nino
2. Tropical Easterly Jet Stream

3. Mozambique Current
4. Upwelling of cold waters in Peruvian coast
5. Western Disturbances

Codes:

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

Solution:

(c)

Exp: El Nino weakens the Indian monsoon.

Western Disturbances as such has no effect on Indian monsoon. La Nina strengthens Indian monsoon added by upwelling of cold water at Peru.

89. Which of the following statements is/are true about rainfall in India?

1. The amount of rainfall increases from eastern side to western side in Gangetic plains.
2. Eastern side of Western Ghats experiences more rainfall than the western side.
3. Entire eastern coast of India experiences winter rainfall through the north east monsoon.

Codes:

(a) 1 and 2
(b) 2 and 3
(c) All
(d) None

Solution:

(d)

Exp: The amount of rainfall decreases from eastern side to western side in Gangetic plains.

Eastern side of western ghats experiences less rainfall than the western side due to mountain barrier.

90. Which of the following statements is/are true about monsoon theory in India?

1. Thermal theory is based on basic theory of high pressure and low pressure and change in direction due to equatorial westerly.
2. Jet stream theory suggest the presence of the westerly jet stream to the north of the Himalayas and the tropical easterly jet stream over the Indian peninsula during summer.
3. El Niño theory suggests a strong low pressure in Indian subcontinent and weak low pressure in Indian ocean.

Select the correct answer using the code below:

(a) Only 2

(b) 2 and 3

(c) 1 and 3

(d) 1 and 2

Solution: (a)

Exp: Thermal theory is based around theory basic high pressure and low pressure and change in direction due to ferrel's laws

The movement of the westerly jet stream to the north of the Himalayas and the presence of the tropical easterly jet stream over the Indian peninsula during summer.
El Niño theory suggests a weak low
pressure in Indian subcontinent and strong low pressure in Indian ocean.

91. Which of the following are the benefits of Coral reefs?

1. Coral reefs act as buffer to currents, waves,
and storms.
2. Coral reefs act as significant food source
as it provides shelter to many species.
3. Coral reefs generate tourism through
recreational fishing trips.
4. Coral reefs are the source of nitrogen and other essential nutrients for marine food chains.

Select the correct answer using the code below:

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

Solution:

(d)

Exp: Coral have great ecological
significance.There are three types of coral
reef fringing, barrier and atolls. Not all
corals built reefs some examples are
precious coral of pacific and red coral of
mediterranean which may also survive in
the colder water and deeper waters. The
reef building corals best survive in
temperature between 20 and 30 C .they are
not formed where cold currents exists. They

are often in shallow region. They need clean water however Recently many corals were found at the mouth of amazon, this is an exception.

The benefits of coral reefs are:

• Protect coastlines from the damaging effects of wave action and tropical storms

• Provide habitats and shelter for many marine organisms

• Are the source of nitrogen and other essential nutrients for marine food chains

• Assist in carbon and nitrogen fixing

• Help with nutrient recycling.

92. Which of the following is/are the characteristics of Indian monsoon?

1. Monsoon is pulsating in nature.
2. It is characterized by seasonal reversal of winds.
3. It leads to well distributed rainfall throughout the year.

Codes:

(a) 1 and 2

(b) 2 and 3

(c) Only 3

(d) All

Solution:

(a)

Exp: Monsoon is known for distinct summer wet and winter dry. All the year rain is in China type climate.

93. Ravines are the result of extensive and deep erosion of soil by the running water. In which of the following areas ravines are present in India?

1. Yamuna-Chambal Ravine Zone.
2. Along the banks of the Narmada.
3. Chota Nagpur region.
4. Shivalik Foothills.

Codes:

(a) 1 and 2

(b) 2, 3 and 4

(c) 3 and 4

(d) All

Solution:

(d)

Exp: A ravine is generally a fluvial slope landform of relatively steep (cross-sectional) sides, on the order of twenty to seventy percent in gradient. Ravines may or may not have active streams flowing along the downslope channel which originally formed them; moreover, often they are characterized by intermittent streams, since their geographic scale may not be sufficiently large to support a perennial watercourse. A ravine is a deep valley which is formed due to linear/dendritic fluvial erosion of loose unconsolidated and bare soils byes.

94. Which of the following statements is/are true about economic importance of Deccan plateau?

1. Deccan plateau has black soil suitable for

the growth of cotton.
2. The black soils of Deccan plateau are agriculturally infertile hence require high doses of fertilizers thus fertilizer industry has been developed in this region.
3. Deccan plateau is the result of basaltic lava flow thus is source of ferrous minerals.

Codes:
(a) 1 and 3
(b) 2 and 3
(c) Only 3
(d) None

Solution:
(a)
Exp: Black soil is fertile in nature and develops wide cracks.

95. Which of the following statements is/are true about different types of rainfall?
1. Convectional rainfall is more frequent in tropical humid climate.
2. High rainfall in Western Ghats and Eastern Himalayas are the result of convectional rainfall.
3. Frontal rainfall is more frequent in tropical hot and humid regions of the world.
Codes:
(a) Only 1
(b) 2 and 3
(c) Only 3
(d) All

Solution:

(a)

Exp: High rainfall in Western Ghats and Eastern Himalayas are the result of orographic rainfall.

Frontal rainfall is found in temperate regions characterized by temperature contrast.

96. Through which of the following States Satpura Range runs?

1. Madhya Pradesh
2. Maharashtra
3. Rajasthan
4. Gujarat

Select the correct answer using the code below:

(a) 1, 2 and 3 (b) 1 and 4

(c) 1 and 2 (d) 1, 2 and 4

Solution:

(d)

Exp: Satpura range: Madhya Pradesh, Maharashtra, Chhattisgarh and Gujarat.

97. Which of the following pair(s) is/are correct?

1. NH 7 : Srinagar to Kanyakumari
2. NH 10 : Siliguri to Gangtok
3. NH 8 : Delhi to Mumbai

Codes:

(a) 1 and 2

(b) Only 3

(c) 2 and 3

(d) All

Solution:

(c)

Exp: NH 7 has been renamed to NH 44 which runs from Srinagar to Kanyakumari.

98. In which of the following way geography is related with the economic development of North Indian plains?

1. The rich alluvial soils of north India provide fertile ground for agriculture.
2. Gangetic plains have huge concentration of agro-based industries.
3. Gangetic plains have huge deposits of mettalic resources which provide for setting up of quarrying industries.
4. Ganga River has the longest Inland Waterway due to presence of navigable rivers.

Codes:

(a) 1, 2 and 4

(b) Only 2

(c) 2 and 3

(d) All

Solution:

(a)

Exp: Gangetic plains are devoid of any mineral resources.

99. Which of the following are the tributaries of the Cauvery river?

Hemavati,

Shimsha,

Arkavathy

Noyyal

Choose the correct option:

Only 4

1 and 4

2 and 4

All the above

Solution: D

The Kaveri basin is estimated to be 81,155 square kilometres (31,334 sq mi) with many tributaries including Harangi, Hemavati, Kabini, Bhavani, Arkavathy, Lakshmanana Tirtha, Noyyal and Amaravati.

100. Kalsubai peak is located in which of the following mountain range?

a. K2, also known as Chhogori is the highest mountain in the world

b. It is located in Karakoram range.

c.. The gentle southern slopes make it a popular trekking spot.

d. It is the source region for river Sutlej.

Solution: B

K2 also known as Mount Godwin-Austen or Chhogori is the second highest mountain in the world, after Mount Everest (8,848 metres), at 8,611 metres (28,251 ft) above sea level.

K2 is the highest point of the **Karakoram** range and the highest point in both Pakistan and Xinjiang.

It is a part of western Himalayas.

K2 is known as the *Savage Mountain* due to the extreme difficulty of ascent because of the steep southern slope