30 Days Revision Module Day 23 - Physical Geography (UPSC Prelims 2021)

1) With reference to modern agriculture, 'Truck farming' refers to which one of the following?

a. Usage of heavy machinery for ploughing and distribution of seeds.

b. The production of crops of some vegetables on an extensive scale in regions especially suited to their culture primarily for shipment to distant markets

c. Livestock farming in specialised stalls and pens.

d. Specialised grape cultivation

Answer : b

- Truck farming is a horticultural practice of growing one or more vegetable crops on a large scale for shipment to distant markets. It is usually less intensive and diversified than market gardening.
- At first this type of farming depended entirely on local or regional markets.
- As the use of railroads and large-capacity trucks expanded and refrigerated carriers were introduced, truck farms spread to the cheaper lands of the West and South, shipping seasonal crops to relatively distant markets where their cultivation is limited by climate.
- Centers for specific crops vary with the season. Among the most important truck crops are tomatoes, lettuce, melons, beets, broccoli, celery, radishes, onions, cabbage, and strawberries.

2) Which of the following conditions are necessary for temperature inversion phenomenon in Deserts?

1. Long night duration.
2. Presence of clouds.
3. Calm and stable air.

Select the correct answer using the code given below:

a. 1 only

b. 1 and 3 only

c. 1 and 2 only

d. 1, 2 and 3

Answer : b

- Long nights will result outgoing radiation becoming greater than incoming radiation reducing the surface temperature to freezing conditions.
- Presence of clouds will result in greenhouse effect causing trapping of heat within the region hindering the escape of radiation disrupting temperature inversion.
- Calm and stable air is needed to prevent vertical mixing of air.

3) Consider the following statements about the Fold Mountains of the Earth:

1. These mountains are found only in the direction of East – West across the Earth.
2. These mountains are found in all the continents of the Earth.
3. These mountains are closely associated with Volcanic Activity.

Which of the statements given above is/are correct?

a. 2 only

b. 1 and 3 only

c. 2 and 3 only

d. 1, 2 and 3

Answer : c

- Fold Mountains are formed from the folding of crust and uprising of the sediments accumulated by rivers along the margins of the continents. This takes place by ocean-continent collision (e.g., the Andes), continent-continent collision (the Alps and the Himalayas).
- All these tectonic processes create sedimentary basins of various types. The directions of these mountains depend on the plates collision direction.
- As the crust plates collision occurs all over the world, the formation of fold mountains are almost found all the continents of the Earth(Even Antarctica has old fold mountains).
- The global distribution of the Fold Mountains is due to the interaction between the various tectonic plates. Thus, there is a close relationship between the volcanoes, earthquakes and the Fold Mountains.
- Example: The Rocky Mountains, the Andes at the edge of the Pacific Ring of Fire.

4) Consider the following statements with reference to the southern Oscillation (SO)

1. Southern Oscillation is a see-saw pattern of meteorological changes observed between the eastern Pacific and western Atlantic Ocean
2. The Periodicity of southern oscillation is fixed in nature
3. Negative southern oscillation is good for the Indian monsoon

Which of the statements given above is/are correct?

a. 1, 2 and 3

b. 2 and 3 only

c. 3 only

d. None of the above

Answer : d

- Normally when the tropical eastern south Pacific Ocean experiences high pressure, the tropical eastern Indian Ocean experiences low pressure.
- But in certain years, there is a reversal in the pressure conditions and the eastern Pacific has lower pressure in comparison to the eastern Indian Ocean.
- This periodic change in pressure conditions is known as the Southern Oscillation or SO.
- The difference in pressure over Tahiti (Pacific Ocean, 18°S/149°W) and Darwin in northern Australia (Indian Ocean, 12°30’S/131°E) is computed to predict the intensity of the monsoons.
- If the pressure differences were negative, it would mean below average and late monsoons. The periodicity of this phenomenon is not fixed in nature.

5) Arrange the following Pacific Ocean Islands from East to West:

1. Galapagos
2. Hawaii
3. Guam
4. Fiji

Select the correct answer using the codes given below:

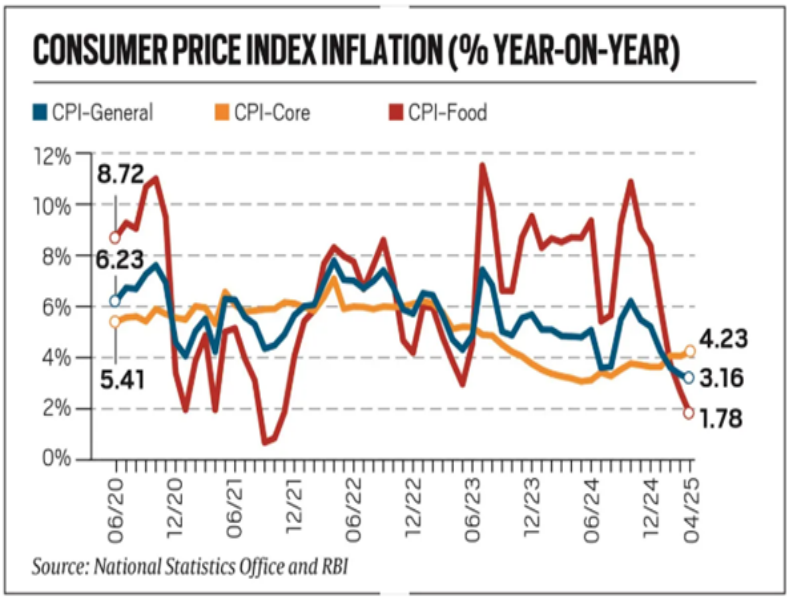
a. 1-2-3-4

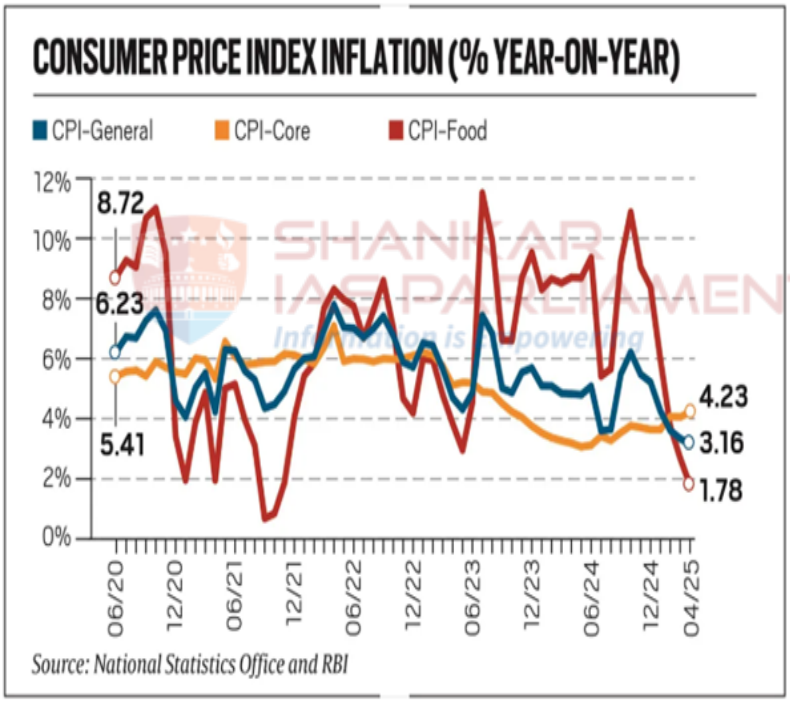
b. 1-2-4-3

c. 3-1-2-4

d. 3-2-4-1

Answer : b





6) With reference to Savanna type climate, consider the following statements

1. Offshore winds in summer brings rains in the region
2. Onshore winds in winter keep the climate dry in the region
3. The highest temperatures do not coincide with the period of the highest Sun.

Which of the statements given above is/are correct?

a. 3 only

b. 1 and 2 only

c. 2 and 3 only

d. 1, 2 and 3

Answer : a

- Savanna Climate is a transitional type of climate which can be found in the region between

equatorial rainforests and hot deserts of the subtropics.

- It is situated within the tropical latitudes on either side of the equator. It is well developed in Sudan, and hence it is also known as sudan climate.
- It has a distinct dry season which occurs in winter. All the rainfall in the region is concentrated during the summer.
- Trade-winds are the prevailing winds in the region. It brings rainfall in the coastal areas. In summer onshore trade winds bring moisture-laden winds causing rainfall while in winter, the winds are off-shore and keep the weather dry.

7) Which of the following cities experience Cool Temperate Western Margin Climate?

1. Dublin
2. Vancouver
3. Hobart
4. Hong Kong

Select the correct answer using the codes given below:

a. 1 and 2 only

b. 1 and 4 only

c. 1, 2 and 3 only

d. 1, 2, 3 and 4

Answer : c

- The Cool Temperate Western Margin (British Type) Climate: These regions are under the permanent influence of the Westerlies all round the year.
- They are also regions of much cyclonic activity, typical of Britain, and are thus said to experience the British type of climate.
- In the southern hemisphere, the climate is experienced in southern Chile, Tasmania and most parts of New Zealand, particularly in South Island.

8) Consider the following statements on Soil formation

1. Steeply sloping terrain results in several layers of soil.
2. The same parent material might develop different soils under different climatic conditions.

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

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

Answer : b

- In a steeply sloping terrain, there is more possibility of soil erosion and mass movement which disturbs formation. Hence steeply sloping terrain has only few layers of soil.

9) Arrange the following countries in ascending order based on the risk of seismic activity

1. Iceland
2. Australia
3. Japan
4. India

Select the correct answer using the codes given below:

a. 1 – 2 – 3 – 4

b. 1 – 2 – 4 – 3

c. 2 – 1 – 3 – 4

d. 2 – 4 – 1 – 3

Answer : d

- The countries present in plate margin are facing the higher risk of natural earthquakes. Earthquake also can be caused by man-made activities such as construction of dams, etc but these earthquakes won't have high magnitude as natural earthquakes.
- Countries in convergent plate margin will have higher magnitude earthquakes than the countries in the divergent plate margin.
- Countries like Iceland, India and Japan lies in the convergent plate margin.
- Hence, these areas having higher risk compared to Australia which is not in the plate margin.

10) Consider the following statements.

1. The insolation heats both earth's surface and atmosphere.
2. After heated by solar radiation, both earths' surface and atmosphere emit long wave radiation.
3. Radiation emitted by the atmosphere is more than earth's surface.

Which of the statements given above is/are correct?

a. 1 only

b. 1 and 2 only

c. 1, 2 and 3

d. None of the above

Answer : b

- The energy received by the earth is known as incoming solar radiation which in short is termed as insolation.
- The insolation heats both earth's surface and atmosphere. The insolation received by the earth is in shortwave form and heats up its surface.
- The earth after being heated itself becomes a radiating body and it radiates energy to the atmosphere in long wave form. This energy heats up the atmosphere from below. This process is known as terrestrial radiation.
- The long wave radiation is absorbed by the atmospheric gases particularly by carbon dioxide and the other green house gases. Thus, the atmosphere is indirectly heated by the earth's radiation.
- The atmosphere in turn radiates and transmits heat to the space.
- The radiation emitted by the earth's surface is more than atmosphere.

11) Which of the following is/are primary reasons for heating-up of ocean water?

1. Absorption of radiation from the sun.
2. Convection currents in the ocean water.
3. Tectonic movements in the ocean floor.

Select the correct answer using the codes given below:

a. 1 only

b. 1 and 2 only

c. 2 and 3 only

d. 1, 2 and 3

Answer : b

- Ocean waters get heated up by the solar energy just as land. The process of heating and cooling of the oceanic water is slower than land.
- The factors which affect the distribution of temperature of ocean water are:
- Latitude: the temperature of surface water decreases from the equator towards the poles

because the amount of insolation decreases poleward.

- 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.
- Prevailing wind: the winds blowing from the land towards the oceans drive warm surface water away from 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.
- Ocean currents: Ocean currents result from two processes - the action of wind on the surface of the water, and from variation in water temperature that causes movement- a process known as convection. warm ocean currents raise the temperature in cold areas while the cold currents decrease the temperature in warm ocean areas. Gulfstream (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.
- Tectonic movements in the ocean floor are not a primary reason for heating up of ocean water.

12) Which one of the following can be a source region for the formation of air masses?

a. Congo Forest

b. The Himalayas

c. Coast of Florida

d. Arctic Ocean

Answer : d

- When the air remains over a homogenous area for a sufficiently longer time, it acquires thecharacteristics of the area.
- The homogenous regions can be the vast ocean surface or vast plains.
- The air with distinctive characteristics in terms of temperature and humidity is called an airmass.
- It is defined as a large body of air having little horizontal variation in temperature and moisture.
- The homogenous surfaces, over which air masses form, are called the source regions.
- The air masses are classified according to the source regions. There are five major source regions. These are:

1. Warm tropical and subtropical oceans;
2. The subtropical hot deserts;
3. The relatively cold high latitude oceans;
4. The very cold snow covered continents in high latitudes;
5. Permanently ice covered continents in the Arctic and Antarctica. Tropical air masses are warm and polar air masses are cold.

- Of the given options, Arctic Ocean can be a source region for formation of air masses – ie, relatively cold high latitude ocean.

13) Which of the following plateau is not a Lava plateau?

a. Colorado plateau

b. Columbia plateau

c. Patagonia plateau

d. Siberian plateau

Answer : a

- Colorado Plateau is an example of Intermontane Plateau (When plateaus are enclosed by Fold Mountains, they are called Intermontane plateaus and this comes under dissected plateaus).
- It is bounded by the Rocky Mountains (north and east), the Great Basin (west), and the

Sonoran Desert (south). All the other three are lava plateaus.

14) Consider the following statements

1. El Nino Modoki results in two cell walker circulation over the tropical Pacific, with a wet region in the central Pacific.
2. La Nina brings abnormally heavy monsoons to India and South East Asia.
3. Positive Indian Ocean dipole results in more cyclones than usual in Arabian Sea.

Which of the statements given above is/are correct?

a. 2 only

b. 1 and 2 only

c. 2 and 3 only

d. 1, 2 and 3

Answer : d

- El Niño Modoki is associated with strong anomalous warming in the central tropical Pacific and cooling in the eastern and western tropical Pacific while el nino involves oceanic and atmospheric phenomena with the appearance of warm currents off the coast of Peru in the Eastern Pacific.
- El Nino Modoki results in two cell walker circulation over the tropical Pacific and it is caused by differences in heat distribution between ocean and land.
- La Niña means The Little Girl in Spanish. La Niña episodes represent periods of below-average sea surface temperatures across the east-central Equatorial Pacific.
- Global climate La Niña impacts tend to be opposite those of El Niño impacts and it brings abnormally heavy monsoons to India and South East Asia.
- Negative IOD phase: Westerly winds intensify along the equator, allowing warmer waters to concentrate near Australia. This sets up a temperature difference across the tropical Indian Ocean, with warmer than normal water in the east and cooler than normal water in the west.
- Positive IOD phase: Westerly winds weaken along the equator allowing warm water to shift towards Africa. Changes in the winds also allow cool water to rise up from the deep ocean in the east. This sets up a temperature difference across the tropical Indian Ocean with cooler than normal water in the east and warmer than normal water in the west. This results in more cyclones than usual in Arabian Sea.

15) Which of the following statements is/are correct with reference to temperature of the ocean water?

1. The oceans in the southern hemisphere receive more heat than the northern hemisphere.
2. The enclosed seas in the low latitudes record relatively lower temperature than the open seas.

Select the correct answer using the codes given below:

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

Answer : d

- 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.
- 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.

16) Match List I and List II and select the correct answer using the codes below:

	List I (Sea)		List II (Factor affecting it's salinity)
A.	North Sea	1.	Evaporation

B.	Mediterranean	2.	Ocean current
C.	Black Sea	3.	Fresh water

a. A-1; B-2; C-3

b. A-2; B-1; C-3

c. A-3; B-1; C-2

d. A-1; B-3; C-2

Answer : b

- North Sea: 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.
- Mediterranean: records higher salinity due to high evaporation
- Black sea: Salinity is very low in Black Sea due to enormous fresh water influx by rivers

17) Consider the following statements about Thunderstorms:

1. Thunderstorms are local storms caused by intense convection.
2. Depending on the climatic factors, thunderstorms can generate dust storms or hailstorms.
3. It occurs more frequently on land than sea.
4. It is always associated with heavy rain.

Which of the statements given above is/ are correct?

a. 2 only

b. 1 and 2 only

c. 1, 2 and 3 only

d. 1, 2, 3 and 4

Answer : c

- Thunderstorms are caused by intense convection on moist hot days. A thunderstorm is a well-grown cumulonimbus cloud producing thunder and lightning.
- When the clouds extend to heights where sub-zero temperature prevails, hails are formed and they come down as hailstorm.
- If there is insufficient moisture, a thunderstorm can generate dust storms. A thunderstorm is characterised by intense updraft of rising warm air, which causes the clouds to grow bigger and rise to greater height.
- This causes precipitation. Later, downdraft brings down to earth the cool air and the rain.

18) Consider the following statements:

1. Weathering is a pre-requisite for mass movement.
2. Mass movements are primarily aided by gravity.
3. Mass movements do not come under erosion though there is a shift of materials from one place to another.

Which of the statements given above is/are correct?

a. 1 and 2 only

b. 1 and 3 only

c. 2 and 3 only

d. 1, 2 and 3

Answer : c

- Gravity exerts its force on all matter, both bedrock and the products of weathering. So, weathering is not a pre-requisite for mass movement though it aids mass movements.
- Mass movements are aided by gravity and no geomorphic agent like running water, glaciers,

wind, waves and currents participate in the process of mass movements.

- That means mass movements do not come under erosion though there is a shift (aided by gravity) of materials from one place to another.

19) Consider the following statements about the forms of Condensation:

1. The density of Fog is quite higher than the mist.
2. The visibility in Fog is lower than that of Mist.

Which of the statements given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

Answer : c

- Fogs are mini clouds in which condensation takes place around nuclei provided by the dust, smoke, and the salt particles. Hence, The Density of Fog is quite high than the mist.
- Due to the high density of the fog, the Visibility in Fog is lower than that of Mist.

20) Which of the following minerals are found as placer deposits?

1. Silver
2. Gold
3. Aluminium
4. Tin
5. Platinum

Select the correct answer using the code given below:

a. 1, 2, 3 and 4 only

b. 2, 3, 4 and 5 only

c. 1 and 2 only

d. 1, 2, 4 and 5 only

Answer : d