Question

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With reference to winter season in India, consider the following statements:
1. During the winter season in India, an area of high pressure is developed in the regions lying north of Himalayas.
2. A decrease in prevailing night temperature is associated with the arrival of western disturbances in the winter season.
Which of the statements given above is/are correct?

1. 1 only
2. 2 only
3. Both 1 and 2
4. Neither 1 or 2

Answer (Detailed Solution Below)

Option 1 : 1 only

Detailed Solution

The correct answer is **1 only.**

Key Points

- During the winter months, a high pressure centre in the region lying to the north of the Himalayas. This centre of high pressure gives rise to flow of air from Central Asia towards Indian subcontinent. Hence, **statement 1 is correct.**
- An **increase** in prevailing night temperature is associated with the arrival of western disturbances in the winter season. Hence, **statement 2 is incorrect.**

Additional Information

- The climate of India is described as the 'monsoon' type. In Asia, this type of climate is found mainly in the south and the southeast.
- Out of a total of 4 seasonal divisions of India, monsoon occupy 2 divisions, namely.
  - The southwest monsoon season - Rainfall received from the southwest monsoons is seasonal in character, which occurs between June and September.
  - The retreating monsoon season - The months of October and November are known for retreating monsoons.
- **Factors Influencing South-West Monsoon Formation**
  - The differential heating and cooling of land and water creates a low pressure on the landmass of India while the seas around experience comparatively high pressure.
  - The shift of the position of Inter Tropical Convergence Zone (ITCZ) in summer, over the Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator. It is also known as the monsoon-trough during the monsoon season).
  - The presence of the high-pressure area, east of Madagascar, approximately at 20°S over the Indian Ocean. The intensity and position of this high-pressure area affect the Indian Monsoon.
  - The Tibetan plateau gets intensely heated during summer, which results in strong vertical air currents and the formation of low pressure over the plateau at about 9 km above sea level.
  - 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.
  - Tropical Easterly Jet (African Easterly Jet).
  - Southern Oscillation (SO): 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 SO.