(SOLUTION) TEST - 5 (IPM 2022)

19. Correct Answer : B

Answer Justification :

Inversion of temperature

Normally, temperature decreases with increase in elevation. It is called normal lapse rate. At times, the situation is reversed and the normal lapse rate is inverted. It is called Inversion of temperature.

Inversion is usually of short duration but quite common nonetheless. Hence, statement 1 is incorrect.

A long winter night with clear skies and still air is an ideal situation for inversion.

The heat of the day is radiated off during the night, and by early morning hours, the earth is cooler than the air above.

Over polar areas, temperature inversion is normal throughout the year.

Surface inversion promotes stability in the lower layers of the atmosphere.

Smoke and dust particles get collected beneath the inversion layer and spread horizontally to fill the lower strata of the atmosphere.

Dense fogs in mornings are common occurrences especially during winter season.

This inversion commonly lasts for few hours until the sun comes up and beings to warm the earth.

20. Correct Answer : A

Answer Justification :

Coriolis Force

The rotation of the earth about its axis affects the direction of the wind. This force is called the Coriolis force after the French physicist who described it in 1844. **It deflects the wind to the right direction in the northern hemisphere and to the left in the southern hemisphere.** The deflection is more when the wind velocity is high. **The Coriolis force is directly proportional to the angle of latitude. Hence, statement 2 is incorrect.**

It is maximum at the poles and is absent at the equator.

The Coriolis force acts perpendicular to the pressure gradient force. The pressure gradient force is perpendicular to an isobar. The higher the pressure gradient force, the more is the velocity of the wind and the larger is the deflection in the direction of wind. As a result of these two forces operating perpendicular to each other, in the low-pressure areas the wind blows around it. At the equator, the Coriolis force is zero and the wind blows perpendicular to the isobars. The low pressure gets filled instead of getting intensified. That is the reason why tropical cyclones are not formed near the equator.

21. Correct Answer : B

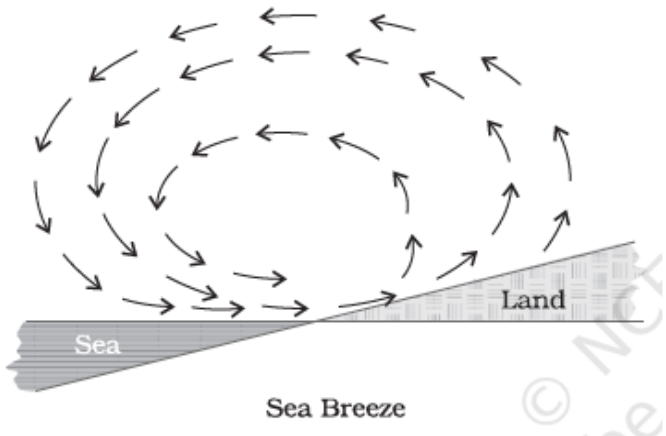
Answer Justification :

Land and Sea Breezes

The land and sea absorb and transfer heat differently. **During the day the land heats up faster and becomes warmer than the sea. Therefore, over the land the air rises giving rise to a low-pressure area, whereas the sea is relatively cool and the pressure over sea is relatively high.Hence, statement 1 is incorrect.**

Thus, **pressure gradient from sea to land is created and the wind blows from the sea to the land as the sea breeze.**

In the night the reversal of condition takes place. The land loses heat faster and is cooler than the sea. The pressure gradient is from the land to the sea and hence land breeze results (Figure 10.7).



Sea Breeze