

- The proportion of anaemic children and women is comparatively lower in Lakshadweep, Kerala, Meghalaya, Manipur, Mizoram and Nagaland, and higher in Ladakh, Gujarat, J&K, and West Bengal, among others.

**Q.8) Consider the following statements:**

1. Lightning is caused due to the electrical potential difference between the two layers of atmosphere.
2. Occurrence of lightning is tracked by India meteorological department.

Which of the above statements is/are correct?

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

**Q.8) Solution (a)**

Lightning is a very rapid — and massive — discharge of electricity in the atmosphere, some of which is directed towards the Earth's surface.

These discharges are generated in giant moisture-bearing clouds that are 10-12 km tall.

The base of these clouds typically lies within 1-2 km of the Earth's surface, while their top is 12-13 km away.

Occurrences of lightning are not tracked in India, and there is simply not enough data for scientists to work with. Often, safety measures and precautions against lightning strikes do not receive as much publicity as other natural disasters such as earthquakes.

**Process:**

- As water vapour moves upward in the cloud, the falling temperature causes it to condense. Heat is generated in the process, which pushes the molecules of water further up.
- As they move to temperatures below zero degrees celsius, the water droplets change into small ice crystals. They continue to move up, gathering mass — until they are so heavy that they start to fall to Earth.
- This leads to a system in which, simultaneously, smaller ice crystals are moving up and bigger crystals are coming down.
- Collisions follow, and trigger the release of electrons — a process that is very similar to the generation of sparks of electricity.
- As the moving free electrons cause more collisions and more electrons, a chain reaction ensues.
- This process results in a situation in which the top layer of the cloud gets positively charged, while the middle layer is negatively charged.
- The electrical potential difference between the two layers is huge — of the order of a billion to 10 billion volts.