

**I. Read the questions and select the correct options:**

**1) Which of the following statements is INCORRECT regarding the Rotation of the Earth?**

- a. The Earth rotates on its polar axis from West to East direction.
- b. The Earth takes approximately 24 hours in completing one rotation.
- c. Rotation causes the occurrence of day and night.
- d. All heavenly bodies seem to move from West to East direction due to the rotation of the Earth.

**2) What would happen if the Earth stops rotating on its own axis?**

- a. The people of the entire Earth would experience the equal amount of day and night throughout the year.
- b. The entire Earth would always experience extreme hot climatic condition.
- c. One half of the Earth would be plunged into perpetual darkness.
- d. The proper ecological balance would be maintained all over the Earth.

**3) Assertion (A): The Earth is flattening at the Poles and bulging at the Equator.**

**Reason (R): The Earth revolves around the Sun in an anti-clockwise direction.**

- a. Both A and R are true and R is the correct explanation of A.
- b. Both A and R are true but R is NOT the correct explanation of A.
- c. A is correct but R is wrong.
- d. A is wrong but R is correct.

**4) Which of the following statements is INCORRECT about Equinox?**

- a. The term 'Equinox' denotes equal nights.
- b. On March 21 and September 23, the Sun shines vertically over the Equator.
- c. The people of Northern Hemisphere experience Spring Equinox on March 21.
- d. We experience Autumn Equinox on September 23 in the Southern Hemisphere.

**5) Assertion (A): On June 21, people of the Northern Hemisphere experience the longest day and shortest night of the year.**

**Reason (R): The Sun rays fall vertically on the Tropic of Capricorn.**

- a. Both A and R are true and R is the correct explanation of A.
- b. Both A and R are true but R is NOT the correct explanation of A.
- c. A is correct but R is wrong.
- d. A is wrong but R is correct.

**6) Assertion (A): The Circle of Illumination does not coincide with the axis of the Earth.**

**Reason (R): The Earth is tilted at an angle of  $25\frac{1}{2}^{\circ}$  with respect to its orbital plane.**

- a. Both A and R are true and R is the correct explanation of A.
- b. Both A and R are true but R is NOT the correct explanation of A.
- c. A is correct but R is wrong
- d. A is wrong but R is correct.

**II. Choose the correct word:**

- a) An imaginary line joining the North Pole and the South Pole on which the Earth rotates.
- b) The fixed elliptical path along which the Earth revolves around the Sun.
- c) The Earth is said to be in ' \_\_\_\_\_ ' on January 3 when its distance from the Sun is minimum. (Approximately 148.5 million km)
- d) The Earth is said to be in ' \_\_\_\_\_ ' on July 4 when its distance from the Sun is

maximum. (**Approximately 151 million km**)

e) The period of diffused light after the sunset.

f) The axis of the Earth is tilted at an angle of  $66\frac{1}{2}^{\circ}$  with the plane of Earth's orbit. This tilt is called the \_\_\_\_\_ of the Earth's axis.

### III. Impact of the Inclination of the Earth's axis:

The inclination of the Earth's axis is responsible for the occurrence of \_\_\_\_\_, \_\_\_\_\_ in daylight hours, \_\_\_\_\_ distribution, \_\_\_\_\_ patterns, and \_\_\_\_\_ ecosystems. It is a fundamental factor in shaping the Earth's \_\_\_\_\_ and the \_\_\_\_\_ of life on our planet.

### IV) Why do we observe variation in the length of days and nights?

Answer: The variation in the length of days and nights occurs because the Earth \_\_\_\_\_ around the Sun with its axis that is always inclined at  $66\frac{1}{2}^{\circ}$ .

- ❖ At the \_\_\_\_\_, the variation is minimum and the days and nights are equal in length throughout the year.
- ❖ The variation is \_\_\_\_\_ at the **Poles**. Hence, people experience continuous daylight for six months during summer and continuous darkness for six months during winter in the Polar Regions.

### V) Why do vertical rays of the Sun give more heat than the slanting rays?

Answer: The part of the Earth that is tilted \_\_\_\_\_ the Sun receives \_\_\_\_\_ rays of the Sun while the other part receives \_\_\_\_\_ rays.

- ❖ The vertical Sun rays are \_\_\_\_\_ and \_\_\_\_\_ in a smaller area while the \_\_\_\_\_ rays spread out over a \_\_\_\_\_ area. Moreover, the

\_\_\_\_\_ rays pass through a \_\_\_\_\_ distance of the atmosphere than the \_\_\_\_\_ rays. Thus, they lose less heat.

**VI) Why are days and nights equal all over the world on March 21 and September 23?**

Answer: On March 21 and September 23, the Sun shines vertically over the \_\_\_\_\_. At this position, neither the North Pole nor the South Pole is tilted \_\_\_\_\_ the Sun. Hence, days and nights are equal in length (12 hours day and 12 hours night) throughout the world on these two days. This is called \_\_\_\_\_. 21<sup>st</sup> March is called \_\_\_\_\_ Equinox while September 23<sup>rd</sup> is called \_\_\_\_\_ Equinox.

**VII) Distinguish between**

- a) Rotation and Revolution of the Earth and
- b) Summer Solstice and Winter Solstice.

**a) Rotation and Revolution Motions of the Earth**

Rotation	Revolution

**b) Summer Solstice and Winter Solstice.**

Summer Solstice	Winter Solstice

**VIII. a.) Why does the February month have 29 days after every four years?**

**Ans:** February has 29 days every four years because of \_\_\_\_\_ years. The Earth takes about 365.25 days to complete one \_\_\_\_\_ around the Sun, but our calendar only has \_\_\_\_\_ days. To make up for the extra 0.25 days, an extra day is added to \_\_\_\_\_ every four years, creating a leap year. This keeps our calendar in sync with the Earth's orbit.

**b) How does the inclination of the Earth's axis impact the phenomenon of the Midnight Sun in the Polar Region?**

**Ans:** The inclination of the Earth's axis (tilted at 23.5 degrees) causes the \_\_\_\_\_ Regions to experience the Midnight Sun. During \_\_\_\_\_, the pole tilted toward the Sun stays in sunlight

for 24 hours, leading to continuous \_\_\_\_\_. This happens because the Sun doesn't set below the horizon, creating the phenomenon of the Midnight Sun in the \_\_\_\_\_ and \_\_\_\_\_ Circles.

**c) What would happen if the axis of the Earth was vertical to the plane of the orbit?**

**Ans:** If the Earth's axis were vertical to its orbit, there would be no \_\_\_\_\_, so we wouldn't have \_\_\_\_\_. Every place on Earth would receive the \_\_\_\_\_ amount of sunlight throughout the year, leading to a constant climate. The poles would be \_\_\_\_\_ and \_\_\_\_\_, while the \_\_\_\_\_ would be hot and sunny all year round, without the seasonal changes we currently experience.