Chapter 3 - Motions of the Earth

1. Answer the following questions briefly.

(a) What is the angle of inclination of the earth's axis with its orbital plane?

(b) Define rotation and revolution.

(c) What is a leap year?

(d) Differentiate between the Summer and Winter Solstice.

(e) What is an equinox?

(f) Why does the Southern Hemisphere experience Winter and Summer Solstice in different times than that of the Northern Hemisphere?

(g) Why do the poles experience about six months day and six months night?

Answer 1.

a. The angle of inclination of the earth's axis with its orbital plane is 66½°.
b. The movement of the earth on its axis is called rotation. The movement of the earth around the sun in a fixed path or orbit is called Revolution.
c. Every fourth year, February is of 29 days instead of 28 days. Such a year with 366 days is called a leap year.
d. **Summer Solstice**- When the Southern hemisphere experiences winter season and there is summer in the northern hemisphere. At that point in time, the position of the earth on 21st June is called the Summer Solstice.

Winter Solstice- When the Southern hemisphere experiences summer season and reverse occurs at the Northern hemisphere. At that point in time, the position of the earth on 22nd December is called the Summer Solstice.

e. On 21st March and September 23rd, direct rays of the sun fall on the equator. At this position, neither of the poles is tilted towards the sun. Therefore, the whole earth experiences equal days and equal nights. This is called an equinox.
f. The Earth is always revolving and it is divided into two hemispheres. The part of the earth which faces the sun experiences summer and the part away from the sun experiences winter. Therefore, Southern Hemisphere experience Winter and Summer Solstice at different times than that of the Northern Hemisphere.
g. The Poles experience 6 months day and six months nights due to the inclination of the earth about its own axis. This inclination keeps one pole towards the sun and another pole away from the sun for 6 months each. Therefore, this condition occurs.

2. Tick the correct answers.

(a) The movement of the earth around the sun is known as

(i) Rotation **(ii) Revolution** **(iii) Inclination**

(b) Direct rays of the sun fall on the equator on

(i) 21 March **(ii) 21 June** **(iii) 22 December**

(c) Christmas is celebrated in summer in

(i) Japan **(ii) India** **(iii) Australia**

(d) Cycle of the seasons is caused due to

(i) Rotation **(ii) Revolution** **(iii) Gravitation**

Answer 2.

a. (ii) Revolution
b. (i) 21 March
c. (iii) Australia
d. (ii) Revolution

3. Fill in the blanks.

(a) A leap year has _____ number of days.

(b) The daily motion of the earth is _____.

(c) The earth travels around the sun in _____ orbit.

(d) The sun's rays fall vertically on the Tropic of _____ on 21st June.

(e) Days are shorter during _____ season.

Answer 3.

(a) A leap year has **366** number of days.

(b) The daily motion of the earth is **rotation.**

(c) The earth travels around the sun in **elliptical** orbit.

(d) The sun's rays fall vertically on the Tropic of **Cancer** on 21st June.

(e) Days are shorter during **winter** season.