

# CHAPTER-2 Latitude and Longitude

## Locating places on the Globe Exercise



1. Fill in the blanks :-

1. The Equator is  $0^\circ$  latitude, and is a great circle.

2. The Antarctic Circle is found in the southern Hemisphere.

3. The Temperature Zone falling between  $23\frac{1}{2}^\circ$  N and  $23\frac{1}{2}^\circ$  S is called the Torrid Zone.

4. The distance between lines of latitude decreases towards the poles.

5. The standard meridian of India is  $82^\circ 30'E$

II. True or false?

1) A latitude is the angular distance from the equator to the poles. (True)

2) All lines of latitude are of the same length. (False)

- 3) The north temperature zone lies to the north of the Arctic Circle. (false)
- 4) The 0° longitude passes through the British Royal Observatory. (false)
- 5) A country can have more than one standard time. (true)

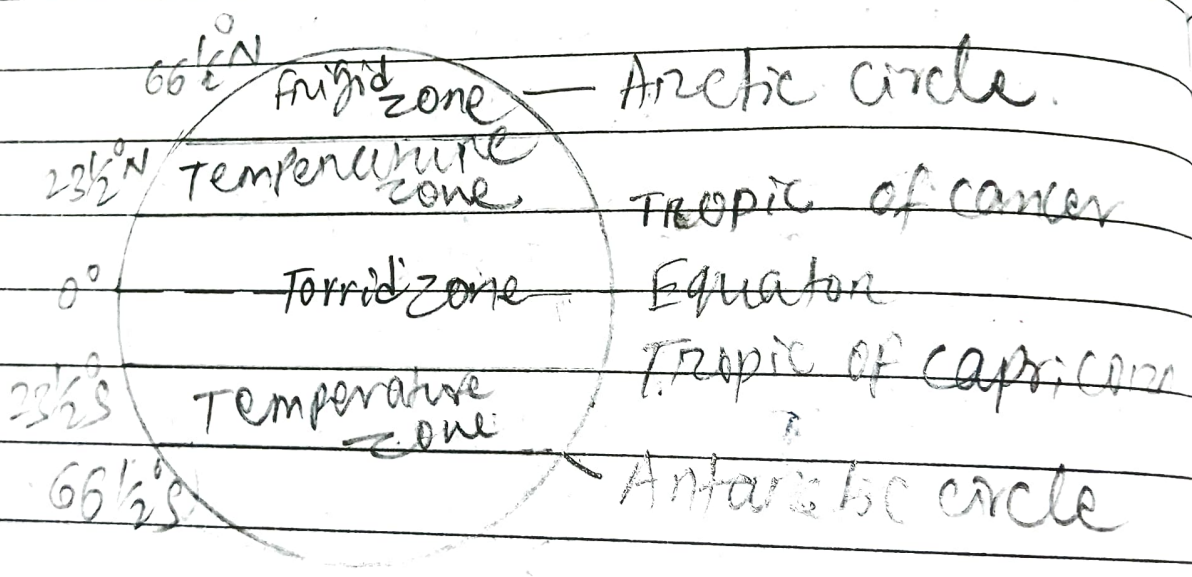
### III. Answer the following:-

1) Define the globe.

Ans:- A globe is a three-dimensional model of the Earth in miniature (i.e., in a ~~very~~ greatly reduced size). It is a true representation of the Earth. A globe is more accurate than a flat map, as it follows the curvature of the Earth. It also gives us the correct shape and size of continents, countries, and shows distances and directions without distortion. Globes are of different sizes and types.

- Apart from being used to locate places, globes are often used to plan long-distance sea and air routes called great circle routes. They are also used to determine the routes of satellites.

## 2. TEMPERATURE ZONES OF EARTH



3. what makes the torrid zone the hottest among the temperature zones?

Ans. As the Earth revolves around the Sun, due to the tilted nature of the Earth's axis, the sun appears to move between the Tropic of Cancer and the Tropic of Capricorn. In the parallels between the two tropics, the mid-day sun shines perpendicularly overhead at least once a year. As these parallels get the direct rays of the sun, this is the hottest zone. This zone is known as the torrid zone or the tropical zone.

4. why is Bangladesh half an hour ahead of India?

Ans. Bangladesh is half an hour ahead of India because sun rises half an hour ago in Bangladesh compared to the area of India standard time (IST).

Further Bangladesh's time is ahead of India.

- 60-30 minutes because India observes an UTC (Universal Time Co-ordinated) offset of +5.30 and Bangladesh observes an UTC offset of +6. The UTC offset is defined as the difference in hours and minutes from Coordinated Universal Time (UTC) for a particular place and date.

Q:75/ what is solar time?

Ans:- The length of the shadow cast by an object indicated the time. The shadow was shortest at noon, and longest at sunrise and sunset. At each place whenever the sun was directly over head, it was considered to be noon. This was called solar time or local time, and it was defined by the position of the sun.

6/ Why is a standard meridian important for a country?

→ The local time of a place depends on the meridian that passes through it. There are several lines of longitude passing through India. There would be great confusion if each place in the country followed its local time. It would not be possible to prepare a common railway or airlines timetable for the country if each place were to follow a different local time. To avoid this confusion, most countries follow a standard time. The standard time for each country is usually taken as the time of the central meridian of that country.

7/ How can we measure the time difference between countries? Explain, giving an example.

→ When the meridian of Greenwich is taken as the standard time of Greenwich P.T.O.

(0°) has the sun directly overhead every place along this meridian has its noon at midday. As the earth rotates from west to east, the places which are to the east of Greenwich

- which are ahead of Greenwich time and those to the west are behind it. Thus, the sun rises in Delhi before it does in London.

Ex.

Let us calculate the time in New York and in Mumbai. Mumbai lies at  $73^{\circ}$  E longitude, New York at  $74^{\circ}$  W.

- The difference in longitude between Mumbai and New York is  $= 73^{\circ} + 74^{\circ} = 147^{\circ}$ . Since New York lies to the west of the Prime Meridian and Mumbai to the east of the prime meridian, the difference in time between the two places is  $= 147^{\circ} \times 4 \text{ minutes} = 588$  minutes.

- 588 minutes = 9 hours 48 minutes. Since 60. New York is to the west of Mumbai, its time is behind Mumbai.

So, 10:00 - 9 hours 48 minutes = 0 hours 12 minutes. Therefore, the time is 12 minutes past midnight in New York when it is 10:00 AM in Mumbai.

Q.78/ How are the lines of latitude and longitude useful to us?

Ans:- Lines of latitude are imaginary lines that run horizontally across the surface of the Earth. They measure the angular distance in degrees, minutes and seconds, of a point north or south of the equator. Lines of Longitude are the imaginary lines that run vertically across the surface of the Earth from the North pole to the south pole.

P.T.O-



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A longitude can be defined as the angular ~~length~~ distance, in degrees and seconds, of a point east or west of the prime meridian. The lines of latitude and longitude intersect at right angles. The grid formed by these lines is called the geographic grid or the Earth grid. The absolute location of a place is its location on this geographic grid. Thus, the Earth grid helps us to locate a place easily.

### Multiple choice Questions:-

1) Which of these statements is correct?

Ans:- (a) A globe is more accurate than a map as it follows the curvature of the Earth. It is therefore able to give the correct size of continents and show distances without distortion.

2) The axis of the Earth is tilted at an angle of

Ans:- (c)  $23\frac{1}{2}^{\circ}$  to the vertical

3) When you say that your school lies to the south of the airport, you are giving the  
ans:- (b) relative location of your school

4) Lines of latitude are imaginary lines -  
ans:- (a) that run horizontally across the surface of the Earth.

5) The equator is drawn -  
ans:- (c) around the middle of the globe.

6) Why is there an unequal distribution of heat energy on the surface of the Earth?  
ans:- (c) Due to the ~~the~~ tilt of nature of the Earth's axis, the angle of incidence of the sun's rays differs from place to place. The more slanting the causes the unequal rays, the less the heating that occurs. This causes the unequal distribution of heat energy across the surface of the Earth.

7) The torrid zone lies between the  
ans- (a) Tropic of Cancer and the  
Tropic of Capricorn.

8) The Prime Meridian -  
ans- (b) passes through Greenwich  
England, where the British  
Observatory is located.

9) In 1884, Sir Sanford Fleming divided  
the world :-  
ans- (a) 24 time zones.

10) Why did India adopt the Indian  
Standard Time (IST)?  
Ans- (a) All of the above -

11) The time difference between GMT  
and IST is  
ans- (a) 5 1/2 hours

12) If a person crosses the International  
Date Line while moving from  
the west to the east, he or she  
ans- (b) loses a day.

13) One degree of longitude is equal to  
ans - (b) 4 minutes of time

14) The meridian that passes through  
Greenwich is called  
ans - (b) the Prime Meridian