CHAPTER 2

GLOBE LATITUDES AND LONGITUDES

2Marks Questions:

1. What is the true shape of the earth?

Answers:

The true shape of the Earth is geoid-earth like shape. In other words, it is orange shaped.

2. What is a globe?

Answers:

Globe is the three dimensional model of the earth.

3. What is the latitudinal value of the Tropic of Cancer?

Answers:

2312° N.

4. What are the three heat zones of the Earth?

Answers:

(i) Torrid Zone
(ii) Temperate Zone
(iii) Frigid Zone

5. What are parallels of latitude and meridians of longitude?

Answers:

Parallels of Latitudes and Meridians of Longitudes:

Parallels of Latitudes:

All the parallel circles from the equator to the poles are called parallels of latitudes.

Meridians of Longitudes:

All the semi-circles which join north pole to south pole are termed as meridians of longitudes.

6. Why does the Torrid Zone receive the maximum amount of heat?

Answers:

Torrid Zone receives the maximum amount of heat because of the following reasons:

- The Sun shines perpendicular between Tropic of Cancer and Tropic of Capricorn throughout the year.
- Perpendicular sun rays give more heat than slanting sun rays.

7.Why is it 5.30 p.m in India when it is 12.00 noon in London?

Answers:

ondon is located at 0° longitude while the time of 8212° E longitude is taken as standard time in India.

- There is a difference of 8212 between the longitude of London and the Standard Meridian of India (8212 E).
- Time in India is ahead of London. It is 4 minutes ahead at every longitude towards east.
- Hence time in India is ahead of London by 5.30 hours (4 x 8212 = 330 minutes or 5.30 hours).

4Marks Questions:

1. A cricket match begins at 10.30 am on January 10 in New Zealand (time zone of +12). TeU. the time in Greenwich when it is shown live on TV there.

Answer: New Zealand lies in time zone +12, Le. it is 12 hours ahead of Greenwich, or Greenwich is 12 hours behind New Zealand. So when it is 10.30 am on January 10 in New Zealand, it is 10.30 pm on January 9. So the cricket match will be telecast from 10.30 pm on Jan 9 in Greenwich.

2. Why do we have the concept of time zone?
Answer:

The sun does not shine with the same intensity over all parts of the world at a particular time. If it is overhead at one place (midday), then it does not shine at all (midnight) at the place directly opposite to that place on the earth. So if we have the same time, then 12 noon will mean midday at one place, and midnight at another. To avoid such an awkward system, we have the system of time zones, so that everywhere a particular time means the same stage of the day.

3. Write a short note on Heat Zones.
Answer:

Heat zones are the different zones of the earth, where the sun's rays fall differently, thus causing different climate patterns. These zones are called the Torrid Zone, the two Temperate Zones, and the two Frigid Zones. The Torrid Zone is very hot since the sun shines overhead here. The Temperate Zones maintain a moderate climate, and the Frigid Zones are extremely cold.

4.Explain the importance of the equator in locating places on the Earth. Provide an example to illustrate the concept.

Answer:

The equator is an imaginary circular line on the Earth that divides it into two equal halves, namely the Northern Hemisphere and the Southern Hemisphere. It serves as a crucial reference point for locating places on the Earth's surface. All parallel circles from the equator up to the poles are called parallels of latitudes. Latitudes are measured in degrees, and the equator represents the zero-degree latitude. For example, the distance from the equator to the North Pole is 90 degrees north latitude, and the distance from the equator to the South Pole is 90

5.Describe the concept of longitudes and explain why a standard meridian is necessary. Provide an example to illustrate the idea of longitudes.

Answer:

Longitudes are lines of reference running from the North Pole to the South Pole, also known as meridians. The Earth is divided into 360 degrees of longitude, with each degree further divided into minutes and seconds. Unlike latitudes, all meridians are of equal length. The Prime Meridian, which passes through Greenwich, London, serves as the reference point for measuring longitudes. The Earth is divided into the Eastern Hemisphere and the Western Hemisphere based on the Prime Meridian. For instance, the longitude of a place is followed by the letter E for east or W for west. Standard meridians are necessary to establish a standard time for a country. In India, the Indian Standard Time (IST) is based on the 82.5° E meridian.

6 .Explain the significance of the Tropic of Cancer and the Tropic of Capricorn in relation to the Earth's heat zones. Provide examples of countries located in these zones.

Answer:

The Tropic of Cancer and the Tropic of Capricorn are important parallels of latitudes that mark the boundaries of the Torrid Zone or the region receiving the maximum heat from the sun. The area between these tropics is known as the Torrid Zone, where the sun is directly overhead at least once a year. Examples of countries located in the Torrid Zone include Mexico, Egypt, and India. The Tropic of Cancer is situated at 23.5° N latitude, while the Tropic of Capricorn is located at 23.5° S latitude. These latitudinal lines play a crucial role in determining the distribution of temperature zones on Earth.

7Marks Questions:

1. In the grid shown below, ten points are marked (a to j). Using the figures marked with the grid, identify the latitudes and longitudes of these points

40°	30°	20°	10°	0°	10°	20°	30°
30°				b			
20°							j
10°	e				f		
0°		a		g		d	
10°							i
20°			c				
30°							h

Answer:

Point	Latitude	Longitude
a	0°	20° W
b	30° N	0°
c	20° S	10° W
d	0°	20° E
e	10° N	30° W
f	10° N	10° E
g	0°	0°
h	40° S	40° W
i	10° S	20° E
j	20° N	30° E

2.Discuss the concept of time zones and why they are essential for coordinating activities globally. Provide an example to illustrate the impact of time zones.

Answer:

Time zones are divisions of the Earth's surface based on longitudinal lines, each representing a standard time. The Earth is divided into 24 time zones, with each zone covering 15 degrees of longitude. Time zones help coordinate activities globally by standardizing time across different regions. For example, if it is noon at the Prime Meridian (Greenwich Mean Time or GMT), it will be different times in other time zones. Understanding time zones is crucial for activities like scheduling international flights, organizing global events, and maintaining a synchronized global communication network. The adoption of standard time zones prevents confusion and ensures effective coordination on a worldwide scale.

3.Explain the concept of a globe and its significance in understanding the Earth's geography.

Answer:

A globe is a spherical model that represents the Earth in a miniature form. It accurately depicts the shape, size, and spatial relationships of countries, continents, and oceans. Unlike flat maps, globes provide a more realistic representation of the Earth. The axis of the globe, resembling a needle pierced through it, allows for rotation, simulating the Earth's daily rotation on its axis. This hands-on activity with a ball and knitting needle helps visualize the movement.

The Earth is not a perfect sphere but is slightly flattened at the North and South Poles and bulging at the equator. This shape is known as an oblate spheroid. A globe accurately represents this shape, allowing viewers to observe the Earth's features in three dimensions. The hands-on activity with the ball and needle serves as a simple model to understand how the Earth's axis, tilt, and rotation contribute to its shape.

4.Explain the significance of the equator and parallels of latitudes in locating places on the Earth. Provide examples to illustrate the concept of latitudes.

Answer:

The equator is an imaginary line that divides the Earth into the Northern and Southern Hemispheres. Parallels of latitudes are circles parallel to the equator, and they help locate places on the Earth's surface. The equator represents 0° latitude, and latitudes are measured in degrees. For instance, Chandrapur in Maharashtra and Belo Horizonte in Brazil may both be at 20° latitude, but the former is 20° N, and the latter is 20° S. Latitudes help specify a location's position north or south of the equator.

The Tropic of Cancer, Tropic of Capricorn, Arctic Circle, and Antarctic Circle are key parallels of latitudes. The Tropics experience the most direct sunlight, creating the Torrid Zone with high temperatures. The areas between the Tropics and the Arctic/Antarctic Circles are Temperate Zones, characterized by moderate temperatures. The regions near the poles are Frigid Zones, experiencing cold temperatures due to slanting sunlight. Understanding these parallels helps in comprehending global climate variations.

Multiple Choice Questions

1) The globe and the earth are different in ……..
(a) shape (b) size

(c) continents and oceans (d) none of these.

2) The axis is parallel to the …….
(a) equator (b) Prime Meridian
(c) latitudes (d) all of these.

3) The Tropic of Cancer is located at …….
(a) 23 $1/_2$ ° N (b) 66 $1/_2$ ° N
(c) 23 $1/_2$ °S (d) 66 $1/_2$ ° S.

4) The heat zone with the coldest climate is the …….
(a) Torrid Zone (b) Northern Temperate Zone
(c) The Frigid Zones (d) either of the Temperate Zones.

5) From the westernmost point to the easternmost point, the local times of India extend over a time difference of……
(a) no difference (b) 30 minutes
(c) 1 hour (d) over 1 hour.

Answers:

1)—(b),

2)—(b),

3)—(a),

4)—(c),

5)—(d)

Fill in the Blanks:

1. Russia extends over…… time zones.
2. As we move away from the equator, the size of the latitudes ……
3. The poles fall in the……..
4. To locate a point, we need to know its latitude, as well as……
5. The British Royal Observatory is located in …….. UK.
6. The lines that run horizontally around the Earth, measuring the distance north or south of the equator, are called .....
7. The equator is a line of latitude that is located at .....degrees.
8. Latitudes are measured in degrees, minutes, and .....
9. The equator divides the Earth into two halves: the Northern Hemisphere and the.....
10. The North Pole is located at .....degrees latitude.

Answers:

1. eleven
2. decreases
3. Frigid
4. longitude
5. Greenwich
6. Latitudes
7. 0 degrees
8. Seconds
9. Southern
10. 90 degrees North

Summary:

Latitudes and longitudes are geographical coordinates used to specify locations on the Earth's surface. These coordinates provide a global system for navigation and mapping, allowing people to pinpoint any location with accuracy.

Latitudes:Latitudes are imaginary lines that run horizontally around the Earth. The equator, an important reference line, is at 0 degrees latitude. Latitudes are measured north and south of the equator, ranging from 90 degrees north at the North Pole to 90 degrees south at the South Pole. The lines are often referred to as parallels.

Longitudes:Longitudes are imaginary lines that run vertically from the North Pole to the South Pole. The Prime Meridian, located at 0 degrees longitude, serves as the reference line for measuring east and west. Longitudes are measured up to 180 degrees east and 180 degrees west. The lines are commonly called meridians.

Coordinates:Together, latitudes and longitudes form a grid system, allowing every point on Earth to have a unique set of coordinates. These coordinates are expressed in degrees, minutes, and seconds (DMS) or decimal degrees. For example, a location might be defined as 40° N, 74° W.

Significance:Latitudes and longitudes are fundamental for navigation, cartography, and understanding global positioning. They play a crucial role in GPS (Global Positioning System) technology, air and sea navigation, and mapping applications. These coordinates enable precise communication of locations, aiding in activities ranging from travel and exploration to disaster management.