

## The Earth and the Graticule

---

### EXERCISE [PAGES 8 - 9]

#### Exercise | Q A .(1) | Page 8

**Choose the correct option.**

What term is used for the imaginary east-west horizontal lines on the earth?

1. Meridians
2. International Date Line
3. Parallels

**Solutions : Parallels**

#### Exercise | Q A. (2) | Page 8

**Choose the correct option.**

What is the shape of the meridians?

1. Circular
2. Semicircular
3. Points

**Solutions : Semicircular**

#### Exercise | Q A. (3) | Page 8

**Choose the correct option.**

What do the parallels of latitude and meridians of longitude together form on the globe?

1. Angular distance
2. Hemisphere
3. Graticule

**Solutions : Graticule**

#### Exercise | Q (A). (4) | Page 8

**Choose the correct option.**

How many parallels are there in the northern hemisphere?

1. 90
2. 89
3. 91

**Solutions : 90**

**Exercise | Q A . (5) | Page 8**

**Choose the correct option.**

Which circle forms the eastern and western hemispheres?

1.  $0^\circ$  parallel and  $180^\circ$  meridian
2.  $0^\circ$  Prime Meridian and  $180^\circ$  meridian
3. North and South Polar circles

**Solutions :  $0^\circ$  Prime Meridian and  $180^\circ$  meridian**

**Exercise | Q A . (6) | Page 8**

**Choose the correct option.**

Which circle appears as a point on the globe?

1. Equator
2. North/South Pole
3. Prime Meridian

**Solutions : North/South Pole**

**Exercise | Q A. (7) | Page 8**

**Choose the correct option.**

How many places on the earth may be located on  $45^\circ\text{N}$  parallel?

1. one
2. many
3. two

**Solutions : many**

**Exercise | Q (B) . (1) | Page 8**

**Observe a globe and examine the following statements. Correct the wrong one.**

Parallels of latitude lie parallel to the Prime Meridian.

1. Right
2. Wrong

**Solutions : Parallels of latitude lie parallel to the Prime Meridian. - Wrong**

**Correct statement - Parallels of latitude lie parallel to the equator.**

**Exercise | Q B . (2) | Page 8**

**Observe a globe and examine the following statements. Correct the wrong one.**

All parallels of latitude converge at the equator.

1. Right
2. Wrong

**Solutions :** All parallels of latitude converge at the equator. - **Wrong**

**Parallels of the latitude do not converge at any point.**

**Exercise | Q (B) . (3) | Page 8**

**Observe a globe and examine the following statements. Correct the wrong one.**

Parallels and meridians are imaginary lines.

1. Right
2. Wrong

**Solutions :** Parallels and meridians are imaginary lines. - **Right**

**Exercise | Q (B) . (4) | Page 8**

**Observe a globe and examine the following statement. Correct the wrong one.**

8° 4' 65" is a north meridians.

1. Right
2. Wrong

**Solutions :** 8° 4' 65" is a north meridians. - **Wrong**

**Correct statement -** 8° 4' 65" is a north parallel of latitude

**Exercise | Q (B) . (5) | Page 8**

**Observe a globe and examine the following statement. Correct the wrong one.**

Meridians are parallel to each other.

1. Right
2. Wrong

**Solutions :** Meridians are parallel to each other. - **Wrong**

**Correct statement -** The parallels of latitude are parallel to each other, whereas the meridians converge at the poles.

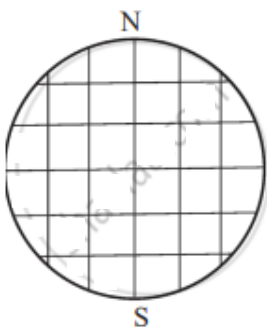
**Exercise | Q C | Page 8**

Find the correct graticule out of the following.

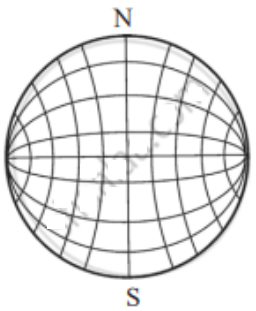
1.



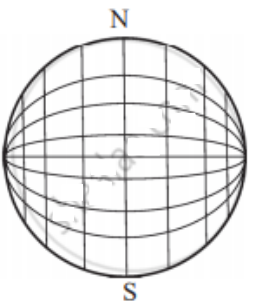
2.



3.



4.



**Solutions :**



### Exercise | Q (D) (1) | Page 9

**Answer the following:**

How will you express the latitude and longitude of the North Pole?

**Solutions :**

1. The parallel of latitude at the North Pole is  $90^{\circ}\text{N}$ .
2. All the meridians of longitudes pass through the North Pole. Hence, the North Pole does not have any specific value for longitude.

### Exercise | Q (D) . (2) | Page 9

How much is the angular distance between the Tropic of Cancer and Tropic of Capricorn?

**Solutions :**

1. The angular distance between Tropic of Cancer and the equator is  $23^{\circ}30'$  and that between Tropic of Capricorn and the equator is  $23^{\circ}30'$ .
2. Since both of these parallels lie on either side of the equator, the total angular distance between both of them is  $23^{\circ}30' + 23^{\circ}30' = 46^{\circ}60' = 47^{\circ}$ .

### Exercise | Q (D) . (3) | Page 9

Using a globe, write down the names of the countries through which the equator passes.

**Solutions :** Ecuador, Colombia, Brazil, Sao Tome and Principe, Gabon, Republic of the Congo, Democratic Republic of the Congo, Uganda, Kenya, Somalia, Maldives, Indonesia, and Kiribati are the 13 countries through which the equator passes.

### Exercise | Q (D) .(4) | Page 9

Write down the main uses of the graticule.

**Solutions :**

1. Graticule is mainly used to determine the exact location of a place on the earth.
2. Some of the modern-day applications of the graticule are the Geographical Information System (GIS), Global Positioning System (GPS), Google Maps, Wikimapia, and Bhuvan of ISRO on the internet.

### Exercise | Q E | Page 9

Complete the following table.

Characteristics	Parallels of latitude	Meridians of longitude
Shape		
Size	Size of each parallel is different.	
Distance		Distance between two meridians is larger on the equator and the same decreases towards the Poles.

Solutions :

Characteristics	Parallels of latitude	Meridians of longitude
Shape	<b>Each parallel of latitude is circular in shape.</b>	<b>Each meridian of longitude is semi-circular in shape.</b>
Size	Size of each parallel is different.	<b>Size of each meridian is the same</b>
Distance	<b>Distance between any two adjacent parallels is the same everywhere on the surface of earth.</b>	Distance between two meridians is larger on the equator and the same decreases towards the Poles.

## Let us Use the Graticule

---

### EXERCISE [PAGES 14 - 15]

#### Exercise | Q (A)(1) | Page 14

Choose the correct option.

66° 30' North parallel means

1. Arctic Circle
2. Equator
3. Antarctic Circle

**Solutions : Arctic Circle**

#### Exercise | Q (A)(2) | Page 14

Choose the correct option.

Which parallel bisects the earth?

1. Tropic of Cancer
2. Tropic of Capricorn
3. Equator

**Solutions : Equator**

#### Exercise | Q (A)(3) | Page 14

Choose the correct option.

What is the angular distance of the Arctic Circle from North Pole?

1. 66° 30'
2. 90°
3. 23° 30'

**Solutions : 66° 30'**

#### Exercise | Q (A)(4) | Page 14

Choose the correct option.

Where do the Prime Meridian and the equator intersect each other?

1. Southern Ocean
2. Atlantic Ocean

3. African Continent

**Solutions : Atlantic Ocean**

**Exercise | Q (A)(5) | Page 14**

**Choose the correct option.**

Up to which parallels from the equator can the sun's rays be perpendicular?

1. Tropic of Cancer and Tropic of Capricorn
2. Arctic and Antarctic Circles
3. North and South Poles

**Solutions : Tropic of Cancer and Tropic of Capricorn**

**Exercise | Q (A)(6) | Page 14**

**Choose the correct option.**

What would be the latitude of a place on the South Pole?

1. 90° S
2. 90° N
3. 0°

**Solutions : 90° S**

**Exercise | Q (B)(1) | Page 14**

**Read the following statement and correct the wrong one.**

While describing the location of a place mentioning the meridian is sufficient.

1. Right
2. Wrong

**Solutions :** While describing the location of a place mentioning the meridian is sufficient. - **Wrong**

**correct statement** - While describing the location of a place, both parallel, as well as meridian, must be mentioned.

**Exercise | Q (B)(2) | Page 14**

**Read the following statement and correct the wrong one.**

For describing the extent of a region, it is necessary to assume the latitude and longitude of the centre of the adjoining region.



1. Right
2. Wrong

**Solutions** : For describing the extent of a region, it is necessary to assume the latitude and longitude of the centre of the adjoining region. - **Wrong**.

**correct statement** - For describing the extent of a region, two parallels of latitude and two meridians of longitude at the extreme ends of the same region should be considered.

### Exercise | Q (B)(3) | Page 14

**Read the following statement and correct the wrong one.**

Location of a road can be described only with a map.

1. Right
2. Wrong

**Solutions** : Location of a road can be described only with a map. - **Wrong**

**correct statement** - Location of a road can be described with help of a map and also by the latitude and longitude of its terminal points.

### Exercise | Q (B)(4) | Page 14

**Read the following statement and correct the wrong one.**

0° East meridian and 180° East meridian

1. Right
2. Wrong

**Solutions** : 0° East meridian and 180° East meridian - **Wrong**

**correct statement** - 0° meridian and 180° meridian.

### Exercise | Q (B)(5) | Page 14

**Read the following statement and correct the wrong one.**

The extent of a road or a river course is described with the help of the latitude of a point in the source and the longitude of a point at the end.

1. Right
2. Wrong

**Solutions** : The extent of a road or a river course is described with the help of the latitude of a point in the source and the longitude of a point at the end. - **Wrong**

**correct statement** - The extent of a road or a river course is described with the help of the latitude and longitude of a point in the source and the latitude and longitude of a point at the end.

**Exercise | Q (B)(6) | Page 14**

**Read the following statement and correct the wrong one.**

8° 4' N parallel to 37° 66° N parallel is the correct description of a location.

1. Right
2. Wrong

**Solutions :** 8° 4' N parallel to 37° 66° N parallel is the correct description of a location.  
**- Wrong**

**Correct Statement** - 8° 4' N parallel to 37° 66' N parallel is an incomplete description of a location as it only describes the latitudinal spread of the location and not its longitudinal spread.

**Exercise | Q (C) | Page 14**

**Find the locations of following cities from a world map, a map of India, or a Globe and write down the latitude and longitude of each of them.**

1. Mumbai
2. Guwahati
3. Srinagar
4. Bhopal
5. Chennai
6. Ottawa
7. Tokyo
8. Johannesburg
9. New York
10. London

**Solutions :**

		Location	
Sr.No.	City	Parallel of Latitude	Meridian of Longitude
i.	Mumbai	19°4' 33" N	72°52' 40" E
ii.	Guwahati	26°08' 40" N	91°44' 10" E
iii.	Srinagar	34°05' 01" N	74°47' 50" E

iv.	Bhopal	23°15' 35" N	77°24' 45" E
v.	Chennai	13°04' 58" N	80°16' 14" E
vi.	Ottawa	45°25' 17" N	75°41' 50" W
vii.	Tokyo	35°41' 22" N	139°41' 30" E
viii.	Johannesburg	26°12' 15" S	28°02' 50" E
ix.	New York	40°42' 46" N	74°0' 21" W
x.	London	51°30' 26" N	0°07' 40" W

### Exercise | Q (D) | Page 15

Find and write down the extent of the following. (Check them on the internet/mobile).

1. Maharashtra (State)
2. Chile (A country)
3. Australia (A continent)
4. Sri Lanka (An island)
5. Trans Siberian Railway of Russia

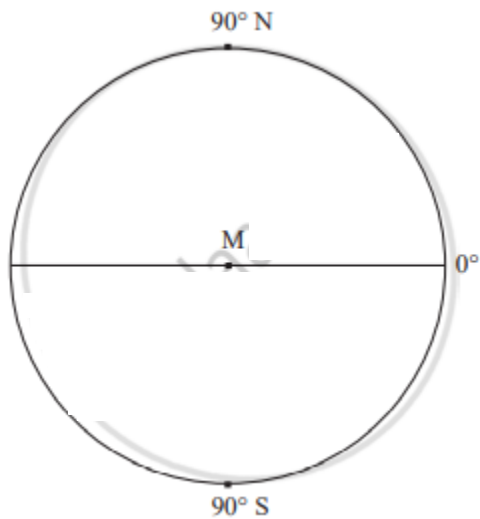
(Starting point - St. Petersburg, Terminal Point -Vladivostok)

### Solutions :

		Extent	
Sr. No.	Name of the Region	Latitudinal	Longitudinal
i.	Maharashtra (State)	15°30' N to 22°N	72°E to 80°50' E
ii.	Chile (A country)	16°S to 56°S	70°40' W to 75°W
iii.	Australia (A continent)	10°41' S to 43°38' S	113°09' E to 153°38' E
iv.	Sri Lanka (An island)	6°48' N to 9°50' N	79°40' E to 81°45' E
v.	Trans Siberian Railway of Russia		
	Starting point - St. Petersburg	59°56' 03" N	30°20' 06" E
	Terminal point - Vladivostok	43°10' 25" N	132°0' 23" E

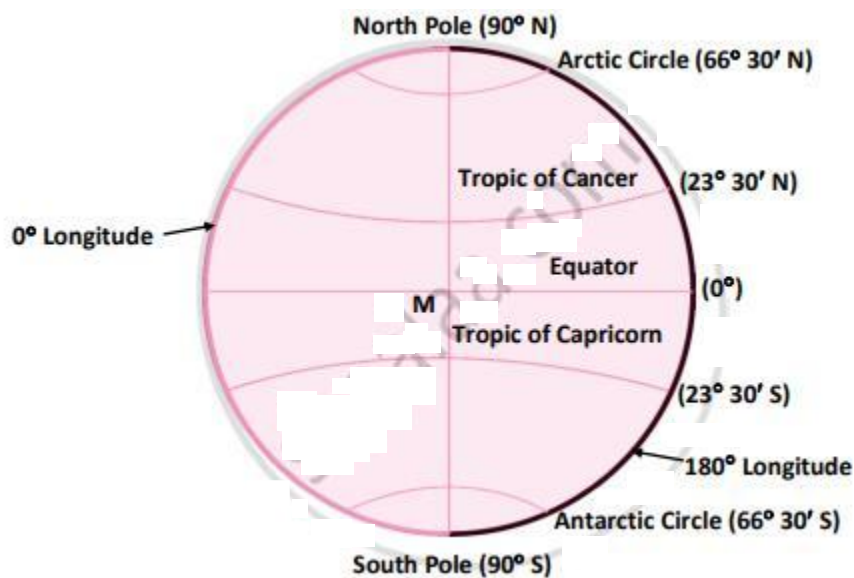
### Exercise | Q (E) | Page 15

Draw important parallels and meridians in the figure given below and label them with appropriate angular measures.  
(Use the protractor.)



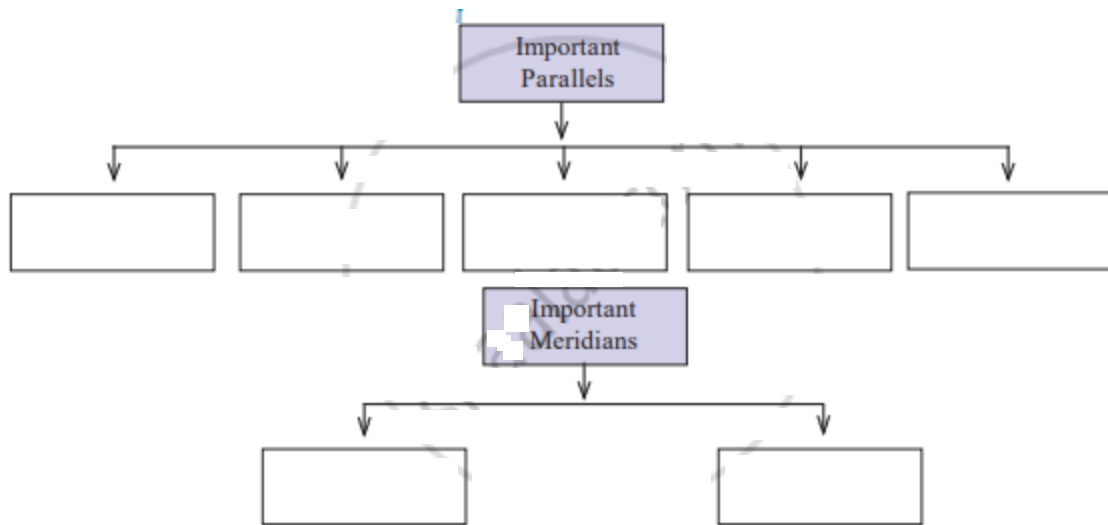
**Solutions :**

The important parallels and the meridians are shown in the adjacent figure:

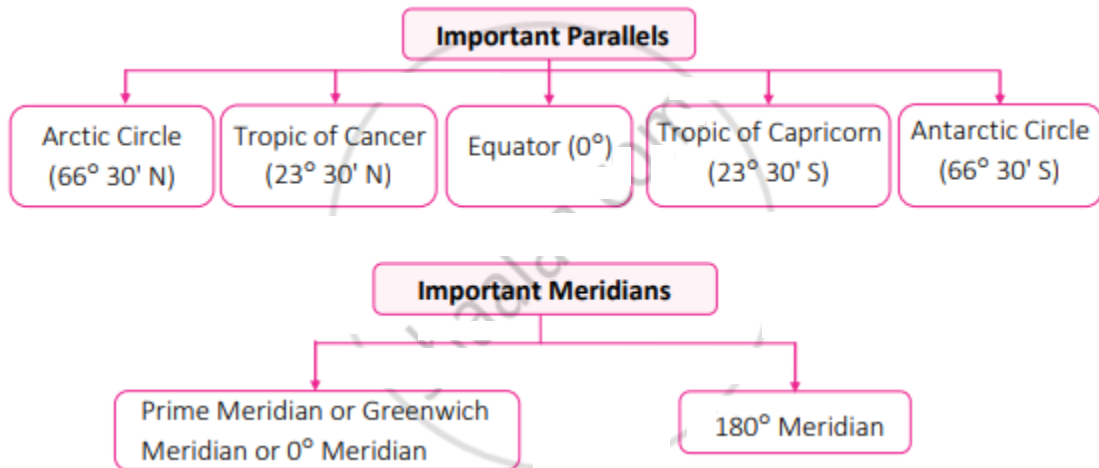


**Exercise | Q (F) | Page 15**

Write the important parallels and meridians in the following table:



**Solutions :**



## Comparing a Globe and a Map; Field Visits

---

### EXERCISE [PAGE 18]

#### Exercise | Q (1) | Page 18

What characteristics of two and three dimensional devices did you note?

#### Solutions :

1. A two-dimensional device has length and width. The product of length and width gives the area of the object. e.g. Map is a two - dimensional device.
2. A three-dimensional object has length, width, and height (thickness). The product of these three gives the volume of the object. e.g. Globe is a three-dimensional device.

#### Exercise | Q (2) | Page 18

What features can be shown on a very small globe?

#### Solutions :

1. Parallels of latitude and meridians of longitude along with the labels of the important parallels and meridians can be shown on a very small globe.
2. Also, important regions like the continents, islands, seas, and oceans can be shown.

#### Exercise | Q (3) | Page 18

Which device will be suitable for understanding the concept of day and night on the earth?

**Solutions :** A globe will be suitable for understanding the concept of day and night on the earth.

#### Exercise | Q (4) | Page 18

Which device will be useful to show your village/city?

**Solutions :** The map will be useful to show my village/city.

#### Exercise | Q (5) | Page 18

Which device can be easily carried from one place to another?

**Solutions :** Maps can be easily carried from one place to another.

# Weather and Climate

---

## EXERCISE [PAGE 21]

### Exercise | Q (A)(1) | Page 21

**Who am I?**

I keep on changing

**Solution:** I keep on changing - **Weather**

### Exercise | Q (A)(2) | Page 21

**Who am I?**

I am not the same at all places.

**Solution:** I am not the same at all places. - **Climate**

### Exercise | Q (A)(3) | Page 21

**Who am I?**

I am the solid state of water droplets.

**Solution:** I am the solid state of water droplets. - **Snow particles, hail**

### Exercise | Q (A)(2) | Page 21

**Who am I?**

I am present in the atmosphere in the form of vapour.

**Solution:** I am present in the atmosphere in the form of vapour. - **Moisture**

### Exercise | Q (B)(1) | Page 21

Why is the climate of Mahabaleshwar cool?

**Solution:**

1. The height of a place above the sea-level affects its temperature.
2. The earth's surface gets heated due to the heat from the sun. The air close to the surface of earth gets heated first and later one by one the layers of air at higher elevation starts heating up.
3. Hence, as we move upwards from the sea-level, the temperature of the air starts decreasing.
4. Mahabaleshwar is a hill station located at a high altitude above the sea-level. Hence, the climate of Mahabaleshwar is cool.

### Exercise | Q (B)(2) | Page 21

Why is the climate near the sea humid?

**Solution:**

1. Sea water gets evaporated due to the heat of the sun and thus water vapours get mixed in the air.
2. Air near the sea with higher temperature holds more amount of moisture.

As a result, the climate near the sea is humid.

### Exercise | Q (B)(3) | Page 21

What is the difference between weather and climate?

**Solution:**

<b>Weather</b>	<b>Climate</b>
It is described on the basis of the conditions prevailing at the given time.	of the conditions prevailing at the given time. It is described on the basis of the conditions prevailing over a longer period of time.
It keeps on changing frequently.	Changes in the climate take place over a long period of time.
We can experience the changes in the weather easily.	We cannot perceive the change in climate easily.

### Exercise | Q (B)(4) | Page 21

What are the elements of weather?

**Solution:** The elements of weather are temperature, air pressure, winds, moisture, and precipitation.

### Exercise | Q (B)(5) | Page 21

What effects do nearness to the sea and height above mean sea level have on the climate?

**Solution: Effects of nearness to the sea on the climate:**

1. Sea water gets evaporated due to the heat of the sun and thus water vapour gets mixed in the air.



2. Thus, the air near the sea with higher temperature holds more amount of moisture.
3. As a result, the climate near the sea is humid.
4. As we move away from the sea, the moisture content in the air gradually decreases and the climate becomes dry.

**Effect of height above mean sea level on climate:**

1. Earth's surface gets heated due to the heat of the sun.
2. Thus, the air close to the surface of the earth becomes hot and the heat gets transferred vertically to the adjacent upper layers of the air.
3. Thus, as we move upward from the sea level, the temperature of air decreases.
4. Hence the temperature of the places at a higher altitude from sea-level is lower than the temperature of the places at a lower height.

**Exercise | Q (C) | Page 21**

**For the climatic conditions mentioned in the table, name the representative places known to you. (Use an atlas.)**

Hot	
Hot and humid	
Cold	
Hot and dry	
Cold and dry	

**Solution:**

<b>Climate</b>	<b>Places</b>
Hot	<b>Jaipur</b>
Hot and humid	<b>Mumbai</b>
Cold	<b>Shimla</b>
Hot and dry	<b>Nagpur</b>
Cold and dry	<b>Punjab</b>

**Exercise | Q (D) | Page 21**

Complete the following table.

<b>Weather</b>	<b>Climate</b>
Short-lived condition of atmosphere	
	Does not change quickly
Expressed with respect to a specific place	
	Elements of climate: Temperature, pressure, winds, humidity and precipitation

**Solution:**

<b>Weather</b>	<b>Climate</b>
Short-lived condition of atmosphere	<b>Long-lived condition of atmosphere.</b>
<b>Changes quickly.</b>	Does not change quickly
Expressed with respect to a specific place	<b>Expressed as 'cool and dry' or 'hot and humid' or 'hot and dry', etc.</b>
<b>Elements of weather: Temperature, air pressure, winds, moisture and precipitation.</b>	Elements of climate: Temperature, pressure, winds, humidity and precipitation

# Temperature

---

## EXERCISE [PAGES 30 - 31]

### Exercise | Q (A)(1) | Page 30

**Where am I?**

The isotherm  $0^{\circ}\text{C}$  runs in my surroundings.

**Solution:** The isotherm  $0^{\circ}\text{C}$  runs in my surroundings. - **Frigid zone**

### Exercise | Q (A)(2) | Page 31

**Where am I?**

The mean annual temperature is  $25^{\circ}\text{C}$  around me.

**Solution:** The mean annual temperature is  $25^{\circ}\text{C}$  around me. - **Torrid zone**

### Exercise | Q (A)(3) | Page 30

**Where am I?**

The mean annual temperature around me is  $10^{\circ}\text{C}$ .

**Solution:** The mean annual temperature around me is  $10^{\circ}\text{C}$ . - **Temperate zone**

### Exercise | Q (B)(1) | Page 30

**Who am I?**

I connect places of equal temperature.

**Solution:** I connect places of equal temperature. - **Isotherm**

### Exercise | Q (B)(2) | Page 30

**Who am I?**

I am useful for measuring the correct temperature.

**Solution:** I am useful for measuring the correct temperature. - **Thermometer**

### Exercise | Q (B)(3) | Page 30

**Who am I?**

I get heated due to the land or water near me

**Solution:** I get heated due to the land or water near me - **Air**

### Exercise | Q (B)(4) | Page 30

**Who am I?**

Land and water get heated due to me.

**Solution:** Land and water get heated due to me. - **Sunrays**

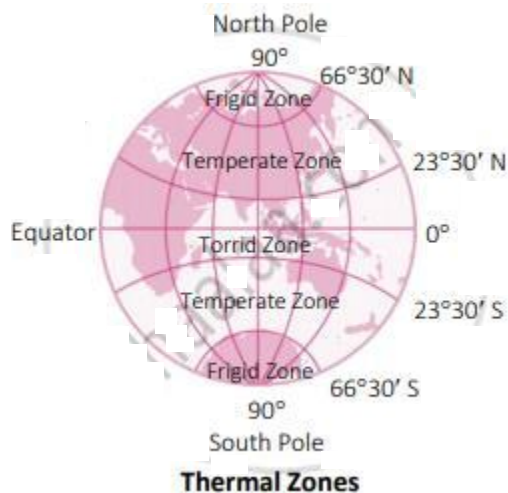
### Exercise | Q C . (1) | Page 30

**Answer the following.**

Explain with a diagram, the effect of the spherical shape of the earth on the temperature at different latitudes.

**Solution:**

1. Sunrays travel in a straight line and are parallel to each other.
2. Due to the spherical shape of the earth and the resultant curvature of the surface of the earth, the sunrays occupy larger or lesser area in different parts of earth.
3. This leads to unequal distribution of heat received from sun, which results in decreasing temperature from the equator to the North and the South poles.
4. Based on this distribution of temperature, the earth is divided into three zones: a. Torrid zone (between  $0^{\circ}$  and  $23^{\circ}30'$ , North and South), b. Temperate zone (between  $23^{\circ}30'$  and  $66^{\circ}30'$  North and South) and c. Frigid zone (between  $66^{\circ}30'$  and  $90^{\circ}$ , North and South).



### Exercise | Q (C)(2) | Page 30

What is the relation between the latitudinal extent and temperature of a region?

**Solution:**

1. As we move away from  $0^{\circ}$  latitude, i.e. from equator towards north and south pole, the temperature decreases.

2. The region between  $0^{\circ}$  to  $23^{\circ}30'$  North and South, i.e. Torrid zone receives perpendicular sunrays, thus the temperature of this region is high.
3. The region between  $23^{\circ}30'$  to  $66^{\circ}30'$  North and South, i.e. Temperate zone receives slant sunrays, thus the temperature of this region is comparatively low.
4. The region between  $66^{\circ}30'$  to  $90^{\circ}$  North and South, i.e. Frigid zone receives extremely slanting sunrays, thus the temperature of this region is very low.

**Exercise | Q (C)(3) | Page 30**

What makes the isotherms run zigzag over continental areas?

**Solution:**

1. The air over the continental areas gets heated and cools faster than that over the oceans.
2. The temperature in the continental areas changes faster as compared to the temperature over the water bodies.
3. Due to this, the isotherm line deviates to a large extent while moving from the oceans to the land.

Hence, the isotherms run zigzag over the continental areas.

# Importance of Oceans

---

## EXERCISE [PAGE 39]

### Exercise | Q (A)(1) | Page 39

Find the odd man out.

1. Shell
2. fish
3. crab
4. ship

**Solution:** Shell, fish, crab, ship - **Ship**

**Ship is manmade, others are found naturally in the ocean.**

### Exercise | Q (A)(2) | Page 39

Find the odd man out.

1. Arabian Sea
2. Mediterranean Sea
3. Dead Sea
4. Caspian Sea

**Solution:** Arabian Sea, Mediterranean Sea, Dead Sea, Caspian Sea. - **Dead sea**

**Salinity of Dead Sea is highest (332 ‰), others have average salinity.**

### Exercise | Q (A)(3) | Page 39

Find the odd man out.

1. Sri Lanka
2. India
3. Norway
4. Peru

**Solution:** Sri Lanka, India, Norway, Peru - **Peru**

**Peru is located to the south of equator; others are located to the north of equator.**

### Exercise | Q (A)(4) | Page 39

Find the odd man out.

1. Southern Ocean
2. Indian Ocean
3. Pacific Ocean
4. Bay of Bengal

**Solution:** Southern Ocean, Indian Ocean, Pacific Ocean, Bay of Bengal- **Bay of Bengal**

**Bay of Bengal is a bay, others are oceans.**

**Exercise | Q (A)(5) | Page 39**

Find the odd man out.

1. Natural gas
2. salt
3. gold
4. manganese

**Solution:** Natural gas, salt, gold, manganese - **Natural gas**

**Natural gas is a gas, others are minerals.**

**Exercise | Q (B)(1) | Page 39**

Which items does man get from the oceans?

**Solution: Man gets the following items from the ocean:**

1. Minerals like iron, lead, cobalt, sodium, manganese, chromium, zinc, etc.
2. Natural gas and mineral oil.
3. Precious items like pearls, corals.
4. Ornamental items like shells.
5. Medicinal plants, etc.
6. Food items such as prawns, clams, crabs, seer fish, mackerel, pomfret, Indian shark, Indian salmon, etc.

**Exercise | Q (B)(2) | Page 39**

Why is it economic to carry out transport by waterways?

**Solution:**

1. Water transport helps to transport bulky goods such as coal, crude oil, raw materials, metallic minerals, food grains, etc. with ease.
2. Such type of transport is carried out along ocean currents which accelerate the speed of ships and thus helps to save fuel to a great extent.

Thus, it is economic to carry out transport by waterways.

### Exercise | Q (B)(3) | Page 39

Why is there a difference in the climates of regions close to the oceans and regions far away from the oceans?

**Solution:**

1. The regions close to the oceans contain more water vapour which is formed due to the heating of ocean water.
2. This water vapour gets mixed with air and holds the heat in it for a longer time. Hence, the air in coastal regions is moist and warm.
3. Humid air leads to less amount of difference in the day and night temperature and therefore the regions close to the oceans have an equable climate.
4. The regions far away from the oceans, contain extremely less amount of water vapour. As a result, the air remains dry.
5. Dry air leads to a sharp difference in the day and night temperature and therefore the regions far away from the oceans have an extreme climate.
6. Hence, the climate is equable in coastal regions, while it is extreme in the continental regions.

### Exercise | Q (B)(4) | Page 39

Which continents are located along the coast of the Pacific Ocean?

**Solution:** The continents located along the coast of the Pacific Ocean are North America, South America, Asia, and Australia.



# Rocks and Rock Types

---

## EXERCISE [PAGE 44]

### Exercise | Q (A) | Page 44

How is sand that flows in a river formed? Collect some information about where the sand comes from.

#### **Solution:**

1. Majority of the rivers originate from the mountains, which are comprised of several rocks.
2. As they flow with force, through these mountains, the bigger rocks slowly and steadily get impacted.
3. The water percolates through these rocks and dissolves the minerals. This weakens the structural composition of the rocks.
4. The constant change in temperature along with the winds and the rains and fiercely flowing water, develops cracks on the rock surface, causing them to break into smaller particles (weathering of rocks). These soil particles are transported by the flowing river to the low lying areas and deposited there as sand.
5. Also, at the point where the flowing river enters the ocean/sea, the sand from the sea shore may enter the river flow.

### Exercise | Q (B) | Page 44

**Which of the following monuments are built-in igneous rock?**

1. The Taj Mahal
2. Fort Raigad
3. The Red Fort
4. Ellora Sculpture

**Solution:** Fort Raigad and Ellora sculpture are made up of Igneous rocks.

### Exercise | Q (C) . (1) | Page 44

**Find the difference between**

Igneous and sedimentary rocks

**Solution:**

<b>Igneous Rocks</b>	<b>Sedimentary Rocks</b>
These are formed due to the cooling and solidification of 'magma' and 'lava'.	These rocks are formed due to continuous deposition and compaction of weathered pieces of rocks transported to various places by wind, glaciers, rivers, etc.
These are hard, homogeneous and heavy rocks.	These are brittle, layered and light in weight.
They lack fossils	They show presence of fossils.
Example: Basalt, Granite, etc.	Example: Sandstone, limestone, etc.

**Exercise | Q (C) . (2) | Page 44****Find the difference between -**

Sedimentary and metamorphic rocks

**Solution:**

<b>Sedimentary Rocks</b>	<b>Metamorphic Rocks</b>
These rocks are formed due to continuous deposition and compaction of weathered pieces of rocks transported to various places by wind, glaciers, rivers, etc.	Metamorphic rocks are formed from Igneous and Sedimentary rocks. These rocks undergo recrystallization when they are subjected to tremendous heat and pressure caused due to volcanic activity and movements in the earth's interior.
These rocks are brittle, layered, and light in weight.	These rocks are heavy, hard, and recrystallized.
They show presence of fossils.	They lack fossils.
Example: Sandstone, limestone, etc.	Example: Marble, slate, diamond, etc.

**Exercise | Q (C) . (3) | Page 44****Find the difference between -**

Igneous and metamorphic rocks

**Solution:**

<b>Igneous Rocks</b>	<b>Metamorphic Rocks</b>
----------------------	--------------------------

Igneous rocks are formed due to cooling and solidification of 'magma' and 'lava'. These are also known as primary rocks.	Metamorphic rocks are formed from Igneous and Sedimentary rocks. These rocks undergo recrystallization when they are subjected to tremendous heat and pressure caused due to volcanic activity and movements in the earth's interior.
These are derived from the material within the earth's crust.	These are derived by recrystallization of Igneous and Sedimentary rocks.
Example: Basalt, Granite, etc.	Example: Diamond, Marble, etc.

### Exercise | Q 4 | Page 44

Which types of rocks are predominantly found at the following locations?

1. Central Maharashtra
2. South Konkan
3. Vidarbha

**Solution: Following types of rocks are predominantly found at the given locations:**

1. Central Maharashtra: Basalt
2. South Konkan: Laterite and Granite
3. Vidarbha: Basalt, Granite, and Sedimentary.

# Natural Resources

---

## EXERCISE [PAGE 50]

### Exercise | Q (A) . (1) | Page 50

**What is the use of the following resource?**

Water

**Solution:** Water is used for drinking, cleaning, bathing, agriculture, and industrial purposes.

### Exercise | Q (A) . (2) | Page 50

**What is the use of the following resource?**

Forests

**Solution:** Forests are natural habitat of many animals and birds. We obtain wood, resins, rubber, honey, medicinal plants, and fruits from forests.

### Exercise | Q (A) . (3) | Page 50

**What is the use of the following resource?**

Animals

**Solution:** Animals such as horse, oxen, camel, asses, etc. are used for ploughing, riding, transporting goods, etc. Goats, cows, buffaloes are used to get milk. Animals are also used to get meat, eggs, bone powder, hide, wool, etc.

### Exercise | Q (A) . (4) | Page 50

**What is the use of the following resource?**

Minerals

**Solution:** Different metals such as iron, bauxite, etc. are obtained from metallic minerals. Also, different chemicals such as gypsum, rock salt, calcite, etc. are obtained from non-metallic minerals. Some chemicals are used for making different medicines.

### Exercise | Q (A) . (5) | Page 50

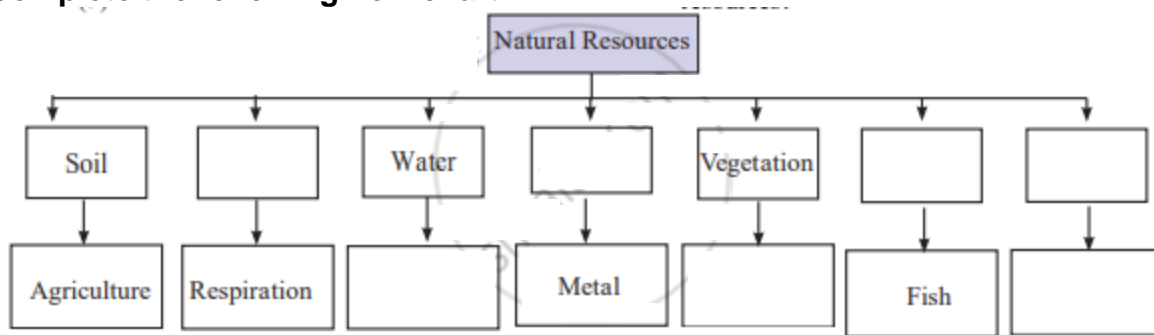
**What is the use of the following resource?**

Land

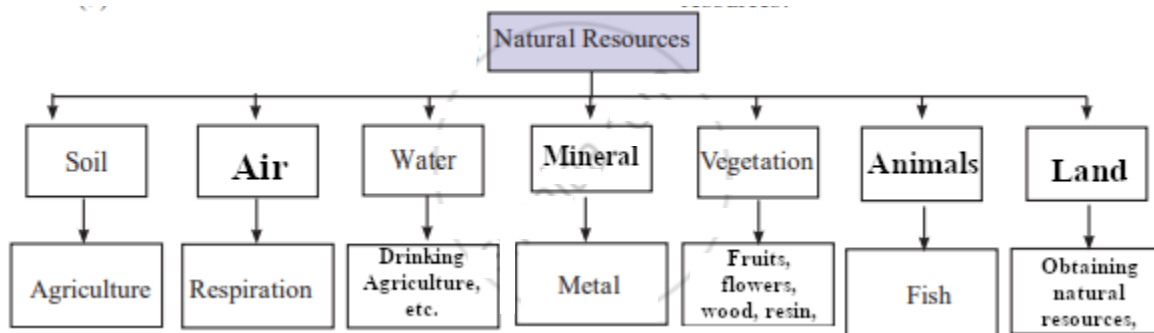
**Solution:** Land is used for various activities like obtaining natural resources such as soil, minerals, plants, etc. It is used for construction as well as for trade. It is also used for settlements.

**Exercise | Q (B) | Page 50**

**Complete the following flow chart.**



**Solution:**



**Exercise | Q (C) . (1) | Page 50**

**Answer the following question.**

What factors influence the formation of soil?

**Solution:** Factors such as the original rock, climate, organic components, slope of the land, and time influence the formation of soil.

**Exercise | Q (C) . (2) | Page 50**

**Answer the following question.**

Which products are obtained from forests?

**Solution:** We obtain products such as wood, resins, rubber, honey, medicinal plants, and fruits from forests.

**Exercise | Q (C) . (3) | Page 50**

**Answer the following question.**

What are the uses of minerals?

**Solution:** Metallic minerals are used for obtaining different metals such as iron, bauxite, etc., whereas non-metallic minerals are used for obtaining various chemicals such as gypsum, rock salt, calcite, etc.

**Exercise | Q (C) . (4) | Page 50**

**Answer the following question.**

What are the purposes for which land is used?

**Solution:**

1. Land is used for various activities like obtaining natural resources such as soil, minerals, plants, etc.
2. It is used for construction as well as for trade.
3. It is also used for settlements.

**Exercise | Q (C) . (5) | Page 50**

**Answer the following question.**

Why is it necessary to conserve the natural resources?

**Solution:**

1. Most of the natural resources are limited in nature.
2. Due to the growing human population and greed of humans, exploitative use of natural resources started which resulted in disturbing the balance of nature.
3. Most of the natural resources are limited in nature.
4. Due to the growing human population and greed of humans, exploitative use of natural resources started which resulted in disturbing the balance of nature.

Therefore, it is necessary to conserve natural resources.

## Energy Resources

---

### EXERCISE [PAGE 59]

#### Exercise | Q (A) . (1) | Page 59

**What resource will have to be used for the following work –**  
Rohan wants to fly a kite.

**Solution:** Wind

#### Exercise | Q (A) . (2) | Page 59

**What resource will have to be used for the following work –**  
People in an Adivasi hamlet have to be protected from the cold.

**Solution: Wood**

#### Exercise | Q (A) . (3) | Page 59

**What resource will have to be used for the following work –**  
Cooking on a picnic.

**Solution:** Wood or Coal

#### Exercise | Q (A) . (4) | Page 59

**What resource will have to be used for the following work –**  
Salma wants to iron her clothes.

**Solution:** Coal or Electricity

#### Exercise | Q (A) .(5) | Page 59

**What resource will have to be used for the following work –**  
Starting a railway-engine.

**Solution: Coal or Electricity**

#### Exercise | Q (A) .(6) | Page 59

**What resource will have to be used for the following work –**  
Heating water for a bath.

**Solution:** Biogas, Wood, Solar heater or Electric heater

**Exercise | Q (A) . (7) | Page 59**

**What resource will have to be used for the following work –**

After sunset, making light available inside the house.

**Solution:** Kerosene, Wood or Electricity

**Exercise | Q (B) . (1) | Page 59**

**Answer the following question.**

Which energy resource does man use the most? Why?

**Solution:**

1. Coal and mineral oil are the energy resources which are used the most by man.
2. Since, mineral oil is expensive, while coal is easily available and less expensive, mineral oil is used mostly by industries whereas, coal is extensively used by individuals.

**Exercise | Q (B) . (2) | Page 59**

Why are energy resources needed?

**Solution:**

1. Energy resources are needed to satisfy the day-to-day as well as long-term needs of human beings.
2. It is used for several purposes such as cooking, generating electricity, driving cars, running factories, and industries, etc.

**Exercise | Q (B) . (3) | Page 59**

Why do we need to use environmentfriendly energy resources?

**Solution:**

1. Substance-based energy resources cause pollution and can cause damage to the environment.
2. Damages caused to the environment have undesirable effects on the human beings also.
3. The entire eco-system is disturbed due to the harmful effects of pollution.
4. On the other hand, process-based energy resources are natural and pollution-free. It is therefore important, that we use environment-friendly resources to preserve the environment and live a better quality of life.

**Exercise | Q (C) . (1) | Page 59**

**Explain the differences using the points in the brackets.**

(availability, environment-friendliness, advantages, and drawbacks)

Mineral oil and solar energy



**Solution:**

Points	Mineral Oil	Solar Energy
Availability	Mineral oil is found under the surface of the earth and below the ocean floor. Its availability is limited.	Solar energy is obtained from the sun and hence its availability is unlimited.
Environment - friendliness	The usage of mineral oil is not environment-friendly.	Usage of solar energy is environment-friendly.
Advantages and Drawbacks	It is used in thermal power generation. It causes pollution.	It is used in solar power generation. It is pollution free.

**Exercise | Q (C) . (2) | Page 59**

**Explain the differences using the points in the brackets.**

(availability, environment-friendliness, advantages, and drawbacks)

Hydel power and power from geo-thermal source

**Solution:**

Points	Hydel Power	Geo-thermal Power
Availability	Hydel power can be generated from running water, hence is easily available.	Geothermal power can be generated from hot water springs, hence is not easily available.
Environment friendliness	It is a relatively environment-friendly resource	It is a relatively less environment-friendly resource
Advantages and Drawbacks	The water used to generate power can be reused. The cost of developing technology is lower as compared to the development of a geothermal power plant.	The heat from the earth's interior is utilised, which would otherwise not be used. The cost of developing the technology is higher as compared to the development of a hydel power plants.

# Human Occupations

---

## EXERCISE [PAGE 65]

### Exercise | Q (A) . (1) | Page 65

#### Select the correct option:

Serving as a \_\_\_\_\_ is a tertiary type of occupation.

1. bus conductor
2. veterinary doctor
3. brick kiln worker

**Solution:** Serving as a bus conductor is a tertiary type of occupation.

### Exercise | Q (A) . (2) | Page 65

#### Select the correct option:

In the tropical areas, we mainly see \_\_\_\_\_ occupations.

1. primary
2. secondary
3. tertiary

**Solution:** In the tropical areas, we mainly see primary occupations.

### Exercise | Q (A) . (3) | Page 65

#### Select the correct option:

Amol's Granny sells papads and pickles. Which type of occupation is it?

1. primary
2. secondary
3. tertiary

**Solution:** tertiary

### Exercise | Q (B) . (1) | Page 65

#### Give reason:

The type of occupation determines a person's income.

**Solution:**

1. The income of a person depends on the type of skills required for the job. Therefore, a person with higher skills has a higher income.
2. Primary occupations include activities such as fishing, animal husbandry, etc. Such activities require lesser skills. Thus, they receive less income.
3. Secondary occupations include processing of the products obtained from nature, which is an industrial activity and hence requires higher skills than those required for primary occupations.
4. Tertiary occupations like transportation, communication, etc. provide complementary services to the primary and secondary occupations. Such occupations require greater technical and organizational skills.
5. Quaternary occupations such as testing the quality of goods, performing research on several products, etc. provide support to all the other occupations.
6. A person must have special skills to perform Quaternary occupations.
7. Thus, different occupations require a different levels of skills. Hence, the income of the person will be different for different occupations. Therefore, the type of occupation determines a person's income.

### Exercise | Q (B) . (2) | Page 65

#### Give reason:

Primary occupations are associated with developing countries while tertiary, with developed countries.

#### Solution:

1. The different type of occupations practiced in different countries across the world, result in economic transactions within a country and outside a country. This decides the country's production of various goods and its annual income.
2. Countries practicing primary occupations have lesser annual income as compared to countries practicing tertiary occupations.
3. This is because, the skills and investment required for the primary occupations are lesser as compared to the tertiary occupations further resulting in lower incomes.

Thus, countries with more manpower engaged in tertiary activities are considered to be developed countries, while countries with more manpower engaged in primary activities are considered to be developing countries.

### Exercise | Q (B) . (3) | Page 65

#### Give reason:

Quaternary occupations are not commonly seen.

**Solution:**

1. Quaternary occupations are not ordinary services and they cannot be performed by ordinary people.
2. They can only be performed by people who have acquired special skills and expertise.

Therefore, quaternary occupations are not commonly seen.