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NAVNEET GEOGRAPHY DIGEST

STANDARD IX

Chapterwise Tests
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CONTENTS

Sr. No.	Name of the Chapter	Page No.
1.	Distributional Maps	... 5
2.	Endogenetic Movements	... 12
3.	Exogenetic Processes Part – 1	... 25
4.	Exogenetic Processes Part – 2	... 32
5.	Precipitation	... 41
6.	The Properties of Sea Water	... 56
7.	International Date Line	... 68
8.	Introduction to Economics	... 78
9.	Trade	... 84
10.	Urbanisation	... 95
11.	Transport and Communication	... 106
12.	Tourism	... 114

MODEL QUESTION PAPERS

*First Semester Examination	... 124
*Second Semester Examination	... 126

1 DISTRIBUTIONAL MAPS

Points to be studied

- **Distributional maps :** Meaning, nature, uses, methods
- **Geographical field visits :** Preparations, selection of the study area, precautions to be taken
- **Report writing :** Format and issues

SUMMARY

1.1 Aim of maps : The main aim of maps is to show the location of a place and geographical distribution of variables.

1.2 Thematic maps : The maps that are prepared with special themes are called thematic maps.

1.3 Distributional maps :

(1) The maps showing the geographical distribution of temperature, rainfall, population, etc. are called distributional maps.

(2) Distributional maps are useful to explain the geographical distribution of various variables in a region.

1.4 Methods of showing geographical distribution in Geographical distributional maps : Distribution of various variables can be shown with the help of the following three methods : (a) Dot method (b) Choropleth method and (c) Isopleth method.

(a) Dot method :

(1) In dot method, the dots are used to show the geographical distribution of a particular variable as per the way a variable is distributed throughout the region.

(2) To show the geographical distribution by dot method, the lowest and the highest values of a given variable in a region are taken into consideration.

(3) The value of dots is determined by taking into consideration the size of the dot, the density of the variable and the scale of a map.

(b) Choropleth method :

(1) In choropleth method, the data regarding various geographical variables is shown by shades or tints of various colours.

(2) In this method, the smallest and the largest values of the given data of the variable in a region are taken into consideration. After that, 5–7 classes are made. Each class is assigned a tint of the same colour or black and white pattern.

(3) In this method, a single tint of the same colour or a single black and white pattern is used to show distribution of a particular variable in sub-administrative unit in a region.

Explanation of Important terms :

(1) **Colour tints :** Colour tints are the shades or tones of same colour used to show distribution of geographical variables in choropleth or isopleth maps. Colour tints are dependent on values. Regions with lesser values of a geographical variable are shown by lighter tints and regions with higher values of geographical variables are shown by darker tints.

(2) **Black and white patterns :** Various patterns of black and white colours are used to show distribution of geographical variables in distribution maps. Black and white patterns are dependent on values. Regions with lesser values of a geographical variable are shown by lighter (scatter) black and white patterns and regions with higher values of geographical variable are shown by darker (dense) black and white patterns.

(c) Isopleth method :

(1) When the geographical distribution of a variable is continuous, the isopleth method is then used

to show its distribution. For example, altitude, temperature, rainfall, etc.

(2) In this method, the highest and the lowest values of the given variable are taken into consideration and accordingly the class intervals are decided and then isolines are drawn for the decided intervals.

(3) The isopleth maps give us an idea of the natural trend of the distribution of a given variable.

1.5 Geographical field visit :

(1) Geographical field visit is an important study method in geography by which geographical concepts and elements can be directly experienced.

(2) Geographical field visits are extremely useful for understanding the correlation between humans and environment.

(3) **Preparations for field visits :** Deciding the place and the purpose of the visit, studying the location maps, preparing questionnaire, etc. are the main preparations for field visits.

(4) **Selection of the study area :** The study area should be selected after studying the local conditions of the study area and obtaining the necessary permission letters.

(5) **Important materials required for field visit :** For a geographical field visit, one should carry a notebook, specimen questionnaire, pen, pencil, scale, tape, compass, a bag for collecting samples, maps, camera, etc.

(6) **Precautions to be taken during geographical field visit :**

(a) During a geographical field visit, it is very essential to obey all instructions of teachers.

(b) During a geographical field visit no one should harm the environment in any way.

(c) One should always keep a first-aid box for emergency circumstances.

(7) **Report writing :**

(a) A field report should be written on the basis of information obtained after the geographical visit is complete.

(b) The field report should be written with the help of the points such as introduction, data gathered, conclusion, etc.

QUESTIONS AND ANSWERS

Q. 1 Complete the following statements by choosing the appropriate alternatives from those given in the brackets : ***(1 Mark each)***

(1) If the contours are close to one another, the slope is ..... . *(gentle, steep, uniform)*

(2) If the contours are far away from one another, the slope is ..... . *(steep, uniform, gentle)*

(3) The ..... method is most suitable for that variable which is freely scattered across the region. *(isopleth, choropleth, dot)*

Ans.

(1) If the contours are close to one another, the slope is steep.

(2) If the contours are far away from one another, the slope is gentle.

(3) The dot method is most suitable for that variable which is freely scattered across the region.

Q. 2 Match the columns : ***(1 Mark each)***

'A'	'B'
(1) Dot method	(a) Use of isolines
(2) Choropleth method	(b) Use of dots
(3) Isopleth method	(c) Use of tint of colours in the entire subdivision
(4) Darker tints	(d) Lower values of variable
	(e) Higher values of variable
	(f) Class interval

Ans. (1) Dot method – Use of dots

(2) Choropleth method – Use of tint of colours in the entire subdivision

(3) Isopleth method – Use of isolines

(4) Darker tints – Higher values of variable.

[**Note :** The questions marked with asterisks (*) are Textual questions.]

Q. 3 Answer the following questions in one sentence each : *(1 Mark each)*

(1) What is an isoline?

Ans. The line connecting places of equal values of a particular variable on a map is called an 'isoline'.

(2) What is point-related data?

Ans. The statistical data of a particular variable with respect to various places is called 'point-related data'.

(3) What are the thematic maps?

Ans. Maps that are prepared with special themes are called 'thematic maps'.

(4) What are the distributional maps?

Ans. Maps that are prepared to show distribution of various geographical variables are called 'distributional maps'.

Q. 4 Give reasons why the following sentences are right or wrong : *(1 Mark each)

Note : According to the question type included in Board's New Activity Sheet, only writing Right or Wrong is expected. Note, that rewriting the wrong sentence by correcting them it is not expected.

(1) The main aim of distributional maps is to show location.

Ans. Wrong.

(2) In choropleth maps, only one value is assigned to the sub-administrative unit.

Ans. Right.

(3) In choropleth maps, colours / tints do not change according to the values of the variables.

Ans. Wrong.

(4) Choropleth maps are used to show altitudes.

Ans. Wrong.

(5) Isopleth maps are used to show population distribution.

Ans. Wrong.

(6) In dot method, every dot should have an appropriate scale.

Ans. Right.

(7) Isopleth maps are not made using isolines.

Ans. Wrong.

(8) Distribution of various geographical elements can be shown using dot method.

Ans. Right.

Note : 'Answer in brief' type question is excluded from the Board's New Activity Sheet Pattern. Therefore, all textual questions of this type are included in 'Short notes' or Answer in 'detail/Explain types' of question'.

Q. 5 Write short notes : *(2 Marks each)*

(1) Dot method.

Ans. (1) While preparing dot maps, only data gathered through counting is used. The way the variable is distributed throughout the region, the dots are used to show its distribution on the dot map. (2) To show the distribution through dot method, the value of a dot has to be determined. To do that, the lowest and the highest values of a given variable in a region are taken into consideration. Accordingly, the number of dots are determined. (3) In order to decide the number of dots and their values, the size of dot, the density of the variable and the scale of the map are taken into consideration. The size of a dot showing a same value is kept uniform. (4) The physiography, water sources, transport system, etc. of a region are considered while placing dots on a map. (5) The dot method is most suitable for that variable which is freely scattered across the region. (For example, population.)

(2) Choropleth method.

Ans. (1) In choropleth method (map), the data regarding various geographical variables is shown by shades or tints of various colours. While making maps using choropleth method, the data of various variables is obtained through various processes such as measurement, surveying, etc. (2) In choropleth method, the smallest and the largest values of the given data in a region are taken into consideration. (3) After that, 5–7 classes (class intervals) are made. (4) Each class (class interval) is assigned a unique tint of the same colour or black and white pattern. The shades or the patterns become darker with the increasing values of given variable and are drawn accordingly on a map. In choropleth method (map), only one value is assigned to the sub-administrative unit.

(3) Isopleth method.

Ans. (1) When the distribution of a variable is continuous, the isopleth method is then used to show its distribution. For example, altitude, temperature, rainfall, etc. (2) In this method, the distribution is shown with the help of lines showing equal values. These lines are called isolines. For these maps, the accurate data regarding variables like altitude, temperature, rainfall, etc. is obtained. (3) In this method, it is assumed that the difference between values of particular element of two places changes at a uniform rate. (4) In this method, by considering the highest and the lowest values of the variable, the class intervals are decided to draw isopleths which in turn decides the difference between the isolines. If isolines are closer to each other, then the change in the variable is steep and if the isolines are away from each other, then it is gentle. In this method, the sub-administrative units are not taken into consideration. By using isopleths method, we get an idea of the natural trend of the distribution of the variable.

(4) Report writing.

Ans. (1) A field report should be written on the basis of information obtained after the field visit is complete. Photographs and relevant information must be added in the field report. (2) The field report can be written with the help of the following points : (a) Introduction (b) Location map and route map (c) Physiography (d) Climate (e) Population (f) Environmental problems and measures (g) Land utilization (h) Conclusions, etc.

Q. 6 Explain the following : *(4 Marks each)*

***(1) Explain the use and types of distributional maps.**

Ans. (A) Use of distributional maps : The distributional maps are useful for explaining the patterns of distribution of a particular geographical variable.

(B) The types of distributional maps : The following are the types of distributional maps :

(1) Dot maps : (1) Dot maps (method) are most suitable for that variable which is freely scattered across the region. (2) In dot method, the dots are used to show the distribution of a particular variable as per the way a variable is distributed throughout the region.

(2) Choropleth method : (1) In choropleth maps (method), the data regarding various geographical variables is shown by shades or tints of various colours. (2) In this method, the smallest and the largest values of the given data of the variable in a region are taken into consideration. After that, 5-7 classes are made. Each class is assigned a unique tint of the same colour or black and white pattern and it is used to show distribution of a particular variable in sub-administrative unit in a region.

(3) Isopleth method : (1) When the distribution of a variable is continuous, the isopleths maps (method) are then used to show its distribution. (2) In this method, isolines are used to show the distribution of a particular variable in a region.

***(2) Differentiate between choropleth and isopleth methods.**

Ans. The difference between choropleth and isopleth methods are as follows : (1) When the distribution of a variable is not continuous (i.e discontinuous), the choropleth method is then used to show its distribution. On the other hand, when the distribution of a variable is continuous, the isopleth method is then used to show its distribution. (2) In choropleth method the tint of the same colour or black and white patterns are used to show the distribution of a particular variable. On the other hand, in isopleths method, isolines are used to show the distribution of a particular variable. In choropleth method, the sub-administrative units are taken into consideration. On the other hand, in isopleth method, the sub-administrative units are not taken into consideration.

***(3) Explain with reasons the method which is best suited to show the distribution of population in a region.**

Ans. (1) The method which is best suited to show the distribution of population in a region is dot method or choropleth method. (2) The distribution of population is not continuous. (i.e. discontinuous) and it is freely scattered across the region. (3) **Dot method :** In dot method, the way the population is distributed throughout the region, the dots are used to show its distribution in a map. In this method, rural

population is shown by dots and urban population is shown by circles. (4) **Choropleth method :** In choropleth method, the sub-administrative units are taken into consideration to show the distribution of population. In this method, the smallest and the largest values of population in a region are taken into consideration. After that, 5–7 classes are made. Each class interval has different value and accordingly it is assigned a unique tint of same colour or black and white patterns to show the distribution of population in sub-administrative units.

(4) Which things are included in preparations of field visits?

Ans. The following things are included in preparations of field visits : (1) Deciding the place and the purpose of the field visit. (2) Deciding the elements which are to be observed in field visit. (3) Studying the location map and the route map of the place to be visited. (4) Planning about the distance, transport route, means of transport and duration of field visit, etc. Preparing questionnaire as per the purpose of the field visit.

(5) Which precautions are to be taken while selecting the study area?

Ans. The following precautions are to be taken while selecting the study area : (1) The information regarding various elements such as physical landforms, river banks, dams, coastal areas, tourism sites, offices or museums related to geographical elements, villages forest areas, etc. should be gathered and the element should be selected after studying the local conditions. (2) Similarly, necessary permission letters have to be obtained while selecting the study area.

(6) Explain the precautions to be taken during field visit.

Ans. The following precautions are to be taken during field visit : (1) One should ensure safety of oneself and others during a field visit. (2) One should obey the instructions given by the teachers. (3) One should not go to unknown remote places alone. (4) During field visit, one should try to understand the local circumstances by conversing with the local people. (5) One should also ensure that one does not harm the environment in any way during field visit. (6) One should always keep a first-aid box with oneself for emergency circumstances.

(7) Explain the importance of geographical field visit.

Ans. (1) Field visit is an important study method in geography. (2) Geographical concepts and elements can be directly experienced through field visits. Field visits are extremely useful for understanding the correlation between humans and environment.

Q. 7 Which method will you use for the following information?

(1) Talukawise wheat production in the district.

Ans. Choropleth method.

(2) Distribution of the altitude of the land in the district.

Ans. Isopleth method.

(3) Distribution of domestic animals in the state.

Ans. Dot method.

(4) The distribution of population density in India.

Ans. Choropleth method.

(5) Temperature distribution in Maharashtra state.

Ans. Isopleth method.

Q. 8 Study the map and answer the following questions : ***(1 Mark each)***

Q. 1. Study the population distribution map of Kolhapur district given on page no. 8 of the textbook and answer the following questions :

(1) Which method has been used to show the distribution of population in the district?

Ans. The dot method has been used to show the distribution of population in the district.

(2) Explain the directionwise distribution of population from dense to sparse.

Ans. The population is dense in the eastern part of the district and sparse in the western part of the district.

(3) What is the population shown by the largest circle? Which place is that?

Ans. The population shown by the largest circle is nearly twenty lakhs. That place is Kolhapur city.

(4) Which taluka has the least population?

Ans. Gaganbavada taluka has the least population.

Q. 2. Make friends with maps !

(Textbook page 1)

- **Study the Figure 1.1 given on page 2 of the textbook and answer the following questions :**

(1) What is the population of the Amravati town?

Ans. The population of the Amravati town is nearly five lakhs.

(2) Name the place having population of 1 lakh on the map.

Ans. The place having population of 1 lakh on the map is Achalpur.

(3) Which part of the map shows sparse distribution of population?

Ans. The northern part of the map shows sparse distribution of population.

Q. 3. Make friends with maps !

(Textbook page 3)

- **Study Figure 1.2 (A) given on page 2 OR Figure 1.2 (B) given on page 3 of the textbook and answer the following questions :**

(1) Name the taluka having population density between 301 and 400 persons per sq. km.

Ans. The taluka having population density between 301 and 400 persons per sq. km is as follows : Anjangaon Surji.

(2) What is the density of the Amravati taluka?

Ans. The density of the Amravati taluka is more than 400 persons per sq. km.

(3) Name the talukas having population density less than 300 persons per sq. km.

Ans. The talukas having population density less than 300 persons per sq. km. : (1) Bhatkuli (2) Tivsa (3) Nandgaon Khandeshwar (4) Chandur Railway (5) Dhamangaon Railway (6) Chikhaldara (7) Daryapur (8) Chandur Bazar (9) Morshi (10) Varud (11) Dharni.

Q. 4. Make Friends with maps !

(Textbook page 4)

- **Study the Figure 1.3 given on page 4 of the textbook and answer the following questions :**

(1) In which part of the district is the rainfall more?

Ans. The rainfall is more in the northern part of the district.

(2) In which direction is the rainfall decreasing?

Ans. The rainfall is decreasing in the southern direction.

(3) What is the lowest value of the rainfall in the district?

Ans. The lowest value of the rainfall in the district is less than 800 mm.

Q. 5. Make Friends with maps !

(Textbook page 5)

- **Study the Figure 1.4 given on page 5 of the textbook and answer the following questions :**

(1) In which direction is the density of population decreasing?

Ans. The density of population is decreasing in north and south direction.

(2) Name the talukas with population density less than 200.

Ans. Names of talukas with population density less than 200 : (1) Shahuwadi (2) Gaganbavada (3) Ajra (4) Chandgad.

(3) Name the talukas having population density between 201 and 400.

Ans. Names of talukas having population density between 201 and 400 : (1) Radhanagari (2) Bhudargad.

(4) Name the talukas with population density more than 400.

Ans. Names of the talukas with population density more than 400 : (1) Panhala (2) Hatkanangale (3) Shirol (4) Karvir (5) Kagal (6) Gadhinglaj.

(5) In which direction are the talukas having higher density of population located in district?

Ans. The talukas having higher density of population are located in the eastern and northeastern direction in district.

(6) Which method has been used in preparing this map?

Ans. Choropleth method has been used in preparing this map.

Q. 6. Make Friends with maps !

(Textbook page 5)

• Study the Figure 1.5 given on page 5 of the textbook and answer the following questions :

(1) In which direction is the rainfall more in the district?

Ans. The rainfall is more in the west side (direction) in the district.

(2) In which direction is the rainfall decreasing?

Ans. The rainfall is decreasing in the east side (direction) in the district.

(3) Which class shows low rainfall category in the district?

Ans. 0 to 600 mm class shows low rainfall category in the district.

(4) Which class shows high rainfall category in the district?

Ans. More than 2400 class shows high rainfall category in the district.

(5) Which method has been used in preparing this map?

Ans. Isopleth method has been used in preparing this map.

ACTIVITIES

• Try this. (Textbook page 5)

(1) Study the map of Nandurbar given in Figure 1.6 carefully. Draw it on another paper or tracing paper along with its taluka and district boundaries.

(2) See the population table given along the map. On the basis of the statistical data, decide the value of the dots considering the highest and the lowest values of population. For example, 1 dot = 10,000 people, so that you can decide how many dots to be given to each sub-administrative unit.

(3) To draw dots of the uniform size, take a ball pen refill. Close the back end of the refill with cotton. Press this end on a stamp-pad and draw the imprints of the dots wherever required.

(4) While placing the dots, consider the physiography, water resources, roads, rails, taluka and district headquarters as shown in map in Figure 1.6 given on textbook page 6.

(5) Compare your dot map with other students and arrange a discussion in the class.

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

2 ENDOGENETIC MOVEMENTS

Points to be studied

- **Natural calamities :** Nature, causes and effects
- **Endogenetic movements :** Nature and classification

SUMMARY

2.1. Natural calamities :

(1) Sometimes, the natural calamities (events) like floods, storms, snowfall, extreme rainfall, earthquakes, volcanic eruptions, etc. occur on the earth.

(2) Natural calamities like earthquakes and volcanic eruptions occur because of the movements below the earth's surface. There is loss of life and property because of natural calamities.

2.2. The nature of endogenetic (internal) movements :

(1) Tremendous energy is released by radioactive materials in the mantle.

(2) These energy waves travel from one place to another. Due to such a flow of energy, instability is caused in the mantle.

(3) Generally, these movements in the earth's interior occur in the upper layer of the mantle.

2.3. Classification of endogenetic (internal) movements : On the basis of velocity, direction and landforms, the endogenetic (internal) movements are classified as follows :

(1) Endogenetic movements based on velocity : On the basis of velocity, endogenetic movements are classified into slow movements (occurring continuously) and sudden movements (occurring in the forms of events).

(2) Endogenetic movements based on direction : On the basis of direction, endogenetic movements are classified into horizontal movements, upward movements and downward movements.

Explanation of Important terms :

(1) Upward movement : The movement of energy waves from the lower level to upper level in the earth's interior is called upward movement.

(2) Downward movement : The movement of energy waves from the upper level to the lower level in the earth's interior is called downward movement.

(3) Endogenetic movements based on landforms : On the basis of direction, endogenetic movements are classified into continent-building movements and mountain-building movements.

2.4. Slow movements : The effects of slow movements can be seen in the form of formation of mountains and continents on the earth's crust.

(A) Mountain-building movements : Mountain-building movements include the movements that lead to formation of fold mountains, block mountains and rift valleys.

(1) Fold mountains : Due to energy waves working towards each other and in horizontal way, the layers of the soft rocks form folds. As a result, the surface of the earth gets uplifted and fold mountains are formed. For example, the Himalayas, the Aravalis, the Rockies, the Andes, the Alps, etc.

(2) Block mountains : Due to energy waves moving away from each other and in horizontal way, the tension on the layers of rocks increases and it leads to the formation of fractures (faults) in rocks. Similarly, waves coming towards each other in hard rocks, also form faults due to compression. When a part of the earth's crust in between two parallel faults is lifted, it looks

like a block. Such a landform is known as a block mountain. For example, Black Forest mountains in Europe, the Meghalaya Plateau of India, etc.

(3) **Rift valleys** : Sometimes, two fractures develop side-by-side in the earth's crust. The land between the two fractures subsides. This subsided deep part is called rift valley. For example, the rift valley of river Narmada in India, The Great Rift Valley of Africa, the Rhine river rift valley of Europe.

(B) **Continent-building (Epeirogenic) movements** : Due to some slow movements, a vast part of the earth's crust is uplifted or gets subsided. When the part of the earth's crust is uplifted above the mean sea level, the continents are formed. Extensive plateaus can also be formed because of such movements. If the originally continental portion of the crust subsides below the sea level, it forms a part of the seabed.

2.5. **Sudden movements** : The effects of sudden movements can be seen in the form of earthquakes and volcanoes.

(A) **Earthquake** : Earth means the ground and the quake means the trembling. Because of the movements occurring in the interior of the earth, tremendous tension is created in the earth's crust. When tension goes beyond limits, the energy is released in the form of waves. This leads to the trembling of the earth's surface and it is known as the occurrence of earthquake. The magnitude of earthquake is measured by Richter scale.

(1) **Causes of earthquake** : (1) Tremendous tension that is created in earth's crust due to internal movements. (2) Moving of the plates. (3) Colliding of the plates. (4) Plates sliding one below the other. (5) Forming of fractures in rock layers due to tension in the interior of the earth. (6) Occurring of volcanic eruptions.

(2) **Focus and epicenter** : Because of the movements occurring below the earth's surface, tension is created and it keeps on accumulating. High energy is released at the place where this tension mounts up. This is the centre of the earthquake. It is called the focus or hypocenter. The place on the earth's surface where the energy waves reach first is called the epicenter of the earthquake. The epicenter is perpendicular to the focus.

(3) **Seismic waves** : The seismic waves can be divided into primary, secondary and surface waves as follows :

1. **Primary or 'P' waves** : These waves are the first one to reach the surface of the earth after the energy is emitted in the earth's interior. These waves travel from the focus of the earthquake in radial direction. These waves are also called forward-backward waves. These waves can travel through all the three states – liquid, solid and gases.
2. **Secondary or 'S' waves** : The waves which reach the earth's surface after the primary waves are called secondary waves. These waves also scatter in all direction from the focus of the earthquake. Their velocity is lesser than 'P' waves. These waves can travel only through solid medium. These waves are more destructive than the 'P' waves.
3. **Surface waves or 'L' waves** : These waves are generated after the main 'P' waves and 'S' waves reach the epicenter. They travel in the direction of the circumference of the earth along the crust. They are highly destructive.

(4) **Seismogram** : Through seismogram, graphs showing movement of seismic waves can be generated. These graphs are known as seismographs and they helps in knowing the magnitude of the earthquake. With their help, even micro-seismic waves can also be measured.

(5) **Effects of earthquake** : (1) Occurrence of Cracks or development of fractures on the ground. (2) Occurrence of landslides leading to sliding of the rocks. (3) Change in the course of groundwater. (4) Uplifting or subsiding of some areas. (5) Generation of Tsunamis. (6) Occurrence of avalanches. (7) Loss of life and property. (8) Disruption in transportation routes. (9) Collapse of communication system.

(B) **Volcanoes :** Hot solid, liquid and gaseous materials are thrown out from the mantle of the earth onto the surface of the earth. This process is called volcanic eruption. During this process ash, water vapour, various types of poisonous and inflammable gases, hot molten magma, etc. are thrown out. When the molten magma comes out on the surface it is called lava.

(1) **Types of volcanoes on the basis of types of eruption :** The following are the types of volcanoes on the basis of types of eruption :

1. **Central-type or conical volcanoes :** If lava is released through a vent during a volcanic eruption, the volcano is called central-type of conical volcanoes. Due to conical volcanoes, conical volcanic mountains are formed.
2. **Fissure-type volcanoes :** If lava is released through a number of cracks or fissures, the volcano is called fissure-type volcano. Due to fissure type volcanoes, volcanic plateaus are formed.

(2) **Types of volcanoes on the basis of periodicity of eruption :** The following are the types of volcanoes on the basis of periodicity of eruption :

1. **Active volcanoes :** If the volcanic eruptions are regular in the present times, then such volcanoe areas are called active volcanoes.
2. **Dormant volcanoes :** When a volcano has not erupted since long, but may become active suddenly, it is called dormant volcano.
3. **Extinct volcanoes :** The volcanoes which have not erupted in the past since long and are not likely to erupt in the future are called extinct volcanoes.

(3) **Effects of volcanoes :** (1) Loss of life and property (2) Generation of tsunami waves (3) Imbalance in the environment (4) Increase in fertility of land (5) Availability of many minerals near the region of lava (6) Formation of new land as well as disappearance of islands (7) Formation of lakes at the mouth of the craters of dead volcanoes.

(4) **Relation between areas of earthquakes and volcanoes with plate boundaries :**

Explanation of Important term :

- **Plates :** The crust (the outermost layer of the earth) is not continuous. It is separated into small and large pieces. These pieces are known as plates. Plates float over the mantle and also move independently.

1. The areas of earthquakes and volcanoes are directly related to plate boundaries. Most of the volcanoes are located on the plate boundaries.
2. The part of the plate boundary, which slides under the crust, subdues. At such boundaries, there is loss of material. Such boundaries are called plate consuming (subduction) boundaries.
3. In areas, where new material is coming up onto the earth's crust, they are called plate creating (constructive) boundaries. Both these processes happen continuously.

QUESTIONS AND ANSWERS

• Q. 1 Tick in front of the correct option ✓ :

(*Note : The answers are given directly.*)

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

(1) On which of the following are slow movements in the earth's interior dependent?

- Landforms ☐
- Velocity ☑
- Direction ☐

(2) When waves divert from each other, what do they create?

- Compression ☐
- Tension ☑
- Mountain ☐

(3) For the formation of a rift valley, which of the following processes should occur in the earth's crust?

- Compression ☐
- Tension ☑
- Weathering ☐

(4) Which of these is a fold mountain?

- The Satpudas ☐
- The Himalayas ☑
- The Western Ghats ☐

(5) The formation of extensive plateaus is a result of which type of movements?

Mountain-building ☐
Continent-building ☑
Horizontal ☐

Q. 2 Match the columns : *(1 Mark each)*

'A'	'B'
(1) The Great Rift Valley	(a) Fold mountain
(2) The Alps	(b) Block mountain
(3) Black Forest mountains	(c) Rift valley
(4) The Rockies	(d) Europe
	(e) South America
	(f) North America

Ans. (1) The Great Rift Valley – Rift valley
(2) The Alps – Fold mountain
(3) Black Forest mountains – Block mountain
(4) The Rockies – North America.

Q. 3 Answer the following questions in one sentence each : *(1 Mark each)*

(1) In which continent is the Great Rift Valley located?

Ans. The Great Rift Valley is located in the continent of Africa.

(2) In which country is the Kilimanjaro volcano found?

Ans. The Kilimanjaro volcano is found in Tanzania.

(3) What are the continent-building movements?

Ans. The movements that lead to uplifting of a vast part of the earth's crust leading to formation of continent or extensive plateaus, are called 'continent-building movements'.

(4) What is meant by continent?

Ans. A vast part of the earth's crust that is uplifted above the mean sea level, is called 'continent.'

***Q. 4 Identify and name the internal movement :** *(1 Mark each)*

(1) Tsunamis are generated in coastal areas.

Ans. Sudden movement.

(2) The Himalayas are an example of fold mountains.

Ans. Slow movement.

(3) Molten magma is thrown out of the earth's mantle.

Ans. Sudden movement.

(4) Rift valley is formed because of faulting.

Ans. Slow movement.

***Q. 5 Arrange the following statements in chronological order in which an earthquake occurs :** *(1 Mark each)*

(1) The earth's surface vibrates.

(2) The plates suddenly move.

(3) Due to the movements in the mantle, compression goes on increasing.

(4) Along the weak points, (fault-lines) rocks break apart.

(5) Stored energy is released in the form of seismic waves.

Ans.

(1) The plates suddenly move.

(2) Due to the movements in the mantle, compression goes on increasing.

(3) Along the weak points, (fault-lines) rocks break apart.

(4) Stored energy is released in the form of seismic waves.

(5) The earth's surface vibrates.

Q. 6 Write short notes : *(2 Marks each)*

(1) World distribution of earthquake and volcanoes.

Ans. (1) Most of the areas of earthquake and areas of volcanoes are located on the plate boundaries. (2) Most of the areas of volcanoes are located along with the coastal areas of the Pacific ocean. The earthquakes and volcanoes occur commonly along the western coasts of the continent of North America and the continent of South America and the eastern coasts of the continent of Asia. (3) The another important belt of the earthquake and volcanoes is found along with Mediterranean Sea. It further gets connected to the Pacific belt. (4) The third important belt of the earthquake and volcanoes is found along with

Atlantic Ocean. This belt moves towards Arctic ocean in the north direction and towards Antarctica in the south direction. It further moves towards Indian Ocean.

(2) Seismogram.

Ans. (1) Seismogram is an instrument to draw seismograph. (2) After studying seismographs, the magnitude of the earthquake is known. (3) With the advanced seismograms, even micro-seismic waves can also be measured. (4) With the help of the seismogram, the magnitude of the earthquake is measured by Richter Scale.

(3) Epeirogenic movements.

Ans. (1) Epeirogenic movements are slow movements. (2) Because of these movements, a vast part of the earth's crust is uplifted or gets subsided. (3) When the part of the earth's crust is uplifted above the mean sea level, continents are formed. Extensive plateaus can also be formed because of such movements. (4) If the originally continental portion of the crust subsides below the sea level, it forms a part of sea-bed.

(4) Plate consuming boundaries and plate creating boundaries.

Ans. (1) The part of the plate boundary, which slides under the crust, subdues. At such boundaries, there is loss of material. Such boundaries are called plate consuming (subduction) boundaries. (2) In areas, where new material is coming up onto the earth's crust, they are called plate creating (constructive) boundaries. Both these processes happen continuously.

Q. 7 Distinguish between the following :** ***(2 Marks each)

(1) Block mountain and Fold mountain.

Block mountain	Fold mountain
1. Because of internal movement, horizontal waves moving away from each other are formed. This causes tension on the layers of rocks. This leads to formation of faults in the rocks.	1. Because of the energy waves and pressure working towards each other and in horizontal direction, the layers of the soft rocks form folds.
2. When a part of the earth's crust in between two parallel faults is lifted, it looks like a block. Such a landform is known as a block mountain.	2. If the pressure is very high, large scale folds are formed and as a result, the surface of the earth gets uplifted and fold mountains are formed.
3. For example, Black Forest Mountains in Europe, the Meghalaya Plateau in India.	3. For example, the Himalayas, the Rockies, the Andes, the Alps.

(Note : Any two points are expected in answer.)

(2) Primary seismic waves and Secondary seismic waves.

Primary seismic waves	Secondary seismic waves
1. The seismic waves that reach the earth first, immediately after the energy is released in the interior are called primary seismic waves.	1. The seismic waves that reach the earth after the primary seismic waves are called secondary seismic waves.
2. Primary seismic waves can travel through all the three mediums i.e. liquid, solid and gaseous.	2. Secondary seismic waves can travel only through the solid medium.
3. The particles lying in the way of primary seismic waves move to and fro in the direction of energy transfer.	3. The particles lying in the way of secondary seismic waves move up and down in the direction of energy transfer.
4. Compared to secondary seismic waves, the primary seismic waves are less destructive.	4. Compared to primary seismic waves, the secondary seismic waves are more destructive.

(Note : Any two points are expected in answer.)

(3) Earthquakes and Volcanoes.

Earthquakes	Volcanoes
1. Sometimes, due to rapid earth movements below the surface, the crust is subjected to a tremendous stress. This energy gets released suddenly resulting in trembling of the surface of the earth. This sudden trembling of the earth's surface is called an earthquake.	1. A process in which hot solid, liquid and gaseous materials are thrown out of from the mantle of the earth onto the surface of the earth, is called volcanic eruption/volcanoes.
2. Due to earthquake, the land may not erupt or subside. Land may erupt or subside with a smaller extent.	2. Due to volcanoes, the land erupts up to great extent and as a result cone shapes mountains or volcanic plateaus are formed.
3. During earthquake, molten magma may not come out on the surface of the earth.	3. During volcanic eruption, molten magma comes out on the surface of the earth.

(Note : Any two points are expected in answer.)

***Q. 8 Give geographical reasons for the following :** *(3 Marks each)*

(1) Buildings collapsed at the foothills of the Himalayas because of an earthquake. Before collapsing they were moving forward and backward.

Ans. (1) If there is occurrence of an earthquake at the foothills of the Himalayas, the surface of the earth trembles. (2) The particles lying in the way of primary waves move to and fro in the direction of energy transfer. On the other hand, the particles lying in the way of secondary waves move up and down in the direction of energy transfer. (3) Primary waves are the first ones to reach the surface of the earth and they are followed by the secondary waves. Therefore, before collapsing, the buildings at the foothills of the Himalayas moved forward and backward.

(2) There is a difference in the formation of the Meghalaya Plateau and the Deccan Plateau.

Ans. (A) Formation of the Meghalaya Plateau : (1) Because of the internal movements, horizontal waves moving towards each other in hard rocks form faults due to compression. (2) When a part of the earth's crust in between two parallel faults is lifted, it looks like a block. (3) Such a land form is known as block mountain. (4) The Meghalaya Plateau is formed in similar way due to a slow endogenous movement.

(B) Formation of Deccan Plateau : (1) During eruption, when the magma comes out not from a single vent but from many cracks (fissures), it is called fissure type volcanic eruption. (2) The molten material coming out with this type of eruption spreads on both sides of the fissure. (3) As a result, volcanic plateaus are formed. (4) The Deccan Plateau is formed in similar way. It is formed due to sudden endogenetic movement. In this way, there is a difference in the formation of the Meghalaya Plateau and the Deccan Plateau.

(3) Most of the volcanoes are found on the plate boundaries.

Ans. (1) There is regular eruption of active volcanoes in the present times. (2) Plate boundaries are the weakest section of the mantle. (3) Due to endogenous movements, many of the plates are pulled away from each other. Similarly, volcanoes are also formed as magma rises upward from the underlying mantle along the gap between the two plates. Thus, most of the volcanoes are found on the plate boundaries.

(4) The Barren Island is becoming conical in shape.

Ans. (1) Barren Island is an island located in the Andaman Sea, dominated by Barren volcano. (2) Barren volcano was dormant for a long time. But, in February 2017, it started erupting and its eruption is conical. (3) Due to its eruption, cone-shaped mountains start forming. Therefore, the Barren Island is becoming conical in shape.

(5) Volcanic eruptions can cause earthquake.

Ans. (1) Areas of earthquake and areas of volcanoes are directly related to the plate boundaries.

Due to the tension in the interior of the earth, fractures in rock layers are formed. It also leads to formation of magma. (2) The magma rises upward from the underlying mantle along the gap between the two plates and thus it leads to an eruption of volcanoes. (3) Sometimes, due to tremendous pressure at the time of volcanic eruption, the earth's surface trembles leading to earthquake. In this way, volcanic eruptions can cause earthquake.

Q. 9 Explain the following : *(4 Marks each)*

(1) What is folding?

Ans. (1) Energy is transferred from the interior of the earth. (2) Due to the slow energy movements and the energy waves moving towards each other and in horizontal direction, the layers of the soft rocks form folds. This process is called 'folding'.

(2) What is fault?

Ans. (1) Because of internal movements, horizontal movements moving away from each other are formed. This causes tension on the layers of rocks. (2) This leads to formation of fracture lines in rocks. These fractures are known as 'faults'.

(3) How are the continents formed?

Ans. (1) The slow movements that continuously take place in the interior of the earth, either move towards the centre of the earth or away from it towards the crust. Such movements at times are responsible for raising an extensive portion of the crust above the sea-level. (2) The portion thus uplifted is a continent. In this way, the continents are formed.

(4) What is an earthquake?

Ans. (1) Sometimes, due to a rapid earth movements below the surface, the crust is subjected to a tremendous stress. (2) This energy gets released suddenly resulting in trembling of the surface of the earth. This sudden trembling of the earth's surface is called an 'earthquake'.

***(5) Give reasons why an earthquake occurs?**

Ans. An earthquake occurs due to the following reasons : (1) Tremendous tension is created in earth's crust due to internal movements. (2) The plates move. (3) The plates collide over each other. (4) Plates slides one below the other. (5) Fractures are formed in rock layers due to tension in the interior of the earth. (6) Sometimes volcanic eruptions occur.

(6) What are the effects of volcanoes?

Ans. The effects of volcanoes are as follows : (1) Eruption of volcanoes leads to loss of life and property. (2) Sometimes tsunamis get generated due to volcanic eruptions occurring below ocean floors. (3) After volcanic eruption, dust, smoke, ash, gases, water vapour, etc. remain in the atmosphere for a long time. This may create imbalance in the environment. Land may become fertile due to volcanic ash. Many minerals are found near the earth's surface because of lava. (4) New land is formed due to volcanic eruption or at times, an island may even disappear. Lakes are formed at the mouth of the craters of dead volcanoes when rain water accumulates in them.

(7) Explain the classification of endogenetic (internal) movements.

Ans. (1) Endogenetic movements are classified on the basis of velocity, direction and landforms. (2) On the basis of velocity, endogenetic movements are classified into slow movements and sudden movements. (3) On the basis of direction endogenetic movements are classified into horizontal movements, upward movements and downward movements. (4) On the basis of direction endogenetic movements are classified into continent building movements and mountain-building movements.

***(8) Which type of movements have led to the formation of the major fold mountains in the world?**

Ans. (1) Slow endogenetic movements that occur continuously have led to the formation of the major mountains in the world. (2) The major fold mountains like the Himalayas, the Aravalies, the Rockies, the Andes, the Alps, etc. are formed due to slow endogenetic (internal) movements.

(9) How is the magnitude of the earthquake related to the collapse of houses?

Ans. (1) The high magnitude of the earthquake leads to the collapse of houses on a large scale. The secondary waves reach the earth's surface after the primary waves are reached. These waves are more destructive than the primary waves. (2) The particles lying in the way of these waves move up and down in the direction of energy transfer. As its effect the houses on the earth's surface move up and down and collapse.

(10) What are the effects of earthquakes on the earth's surface and human life?

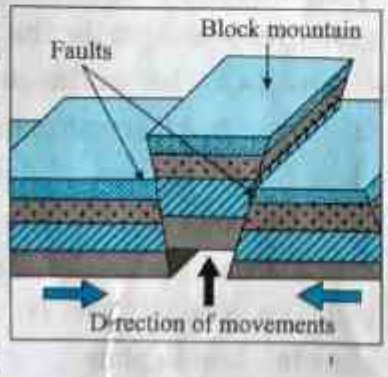
Ans. The effects of earthquakes on the earth's surface and human life are as follows :

(A) Effects on the earth's surface : (1) Earthquake leads to formation of cracks/ fractures on the ground. (2) It causes landslides which leads to sliding of rocks. (3) It sometimes leads to the change in the course of the groundwater. (4) It results in uplifting or subsiding of land. (5) It sometimes leads to generation of tsunamis in oceans. (6) It also leads to occurrence of avalanches in snow-covered areas.

(B) Effects on human life : (1) Earthquake leads to great loss of life and property. (2) It leads to disruption in transportation routes. (3) It leads to collapse of communication system.

Q. 10 Answer the following questions : *(4 Marks each)*

(1) Explain the process of formation of block mountains with suitable diagram.



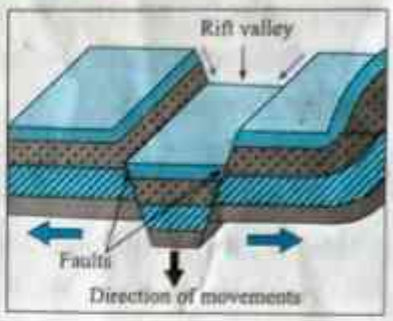
Ans. (1) When the energy waves created in the interior of the earth move towards each another, the layers of hard rocks form faults due to compression.

(2) When a part of the earth's crust in between two parallel faults is lifted, it looks like a block.

(3) Such a land form is known as a block mountain.

(4) In the early stages, block mountains do not have peaks. Their slopes are steep. For example, Black Forest Mountain in Europe, the Meghalaya Plateau in India.

(2) Explain the process of formation of rift valley with suitable diagram.



Ans. (1) When horizontal movements on the earth's surface act in opposite direction, it causes tension on the rocks in the earth's crust. When tension increases, fractures develop in the rocks. This leads to formation of faults.

(2) As its effect, rocks on the both the ends slide and the continuity in the layers of rocks is not found. Sometimes, two fractures develop side-by-side in the earth's crust. The land between the two fractures subsides. This subsided deep part is called rift valley.

(3) Both the slopes of a rift valley are found to be steep.

(4) For example, the rift valley of the Great Rift Valley of Africa.

(3) What changes does occur due to endogenetic movements on the surface?

Ans. The following changes occur due to endogenetic movements on the surface of the earth : (1) Due to the endogenetic movements, the soft rock is compressed giving rise to folds. The folds are raised up forming fold mountains. (2) Due to endogenetic movements, faults are formed in hard rock. Sometimes, a portion of the crust between two parallel faults is raised up, forming block mountain. (3) Sometimes, when endogenetic movement is in opposite direction and divergent, the crust is subjected to tension. As its effect, the area between the two adjoining faults subsides and a rift valley is formed. (4) Due to endogenetic movements, the part of the earth's crust is uplifted above the mean sea-level. This results in the formation of vast continents and extensive plateaus.

***(4) Explain the types of volcanoes on the basis of periodicity of eruption with examples.**

Ans. The types of volcanoes on the basis of periodicity of eruption are as follows :

(1) Active volcanoes : If the volcanic eruptions are regular in the present times, then such volcanoes area called active volcanoes. For example, Mt. Fujiyama in Japan, Mt. Stromboli in Mediterranean Sea.

(2) Dormant volcanoes : When a volcano has not erupted since long, but may become active suddenly, it is called dormant volcano. For example, Mt. Vesuvius in Italy, Mt. Katmai in Alaska, Barren Island in India.

(3) Extinct volcanoes : The volcanoes which have not erupted in the past since long and are not likely to erupt in the future are called extinct volcanoes. For example, Mt. Kilimanjaro in Tanzania.

(5) Explain the types of volcanoes on the basis of types of eruption with examples.

Ans. The types of volcanoes on the basis of types of eruption are as follows :

(1) Central-type or conical volcanoes : If lava is released through a vent during a volcanic eruption, the volcano is called central-type of conical volcanoes. In this type of volcanoes, the ejected material settled around the vent. Due to conical volcanoes, conical volcanic mountains are formed. For example, Vesuvius in Italy, Kilimanjaro in Tanzania.

(2) Fissure-type volcanoes : If lava is released through a number of cracks or fissures, the volcano is called fissure-type volcano. In this type of volcanoes, the ejected material spreads on either or both sides of the fissures. Due to fissure-type volcanoes, volcanic plateaus are formed. For example, the Maharashtra Plateau.

***(6) Explain the types of seismic waves.**

Ans. The types of seismic waves are as follows :

(1) Primary or 'P' waves : (1) The seismic waves that reach the earth first, immediately after the energy is released in the interior are called primary or 'P' waves. (2) They travel rapidly in radial direction from the focus of the earthquake. (3) They travel from all the mediums i.e. liquid, solid and gaseous. While travelling through liquid medium, their direction gets changed. (4) Due to these waves, the particles in the rock move forward and backward in the direction of waves. (5) Primary waves are comparatively less destructive.

(2) Secondary or 'S' waves : (1) The waves that reach the earth's surface after the primary waves are called secondary or 'S' waves. (2) These waves scatter in radial direction from the focus of the earthquake. Their velocity is lesser than the velocity of 'P' waves. (3) They can travel only through the solid medium. They get absorbed as they enter the liquid medium. (4) Due to these waves, the particles in the rock move up and down in the direction of waves. (5) Secondary waves are more destructive than the 'P' waves.

(3) Surface or 'L' waves : (1) The waves that are generated after the primary waves and secondary waves are called surface or 'L' waves. (2) They travel in the direction of the circumference of the earth along the crust. (3) Due to these waves, the particles in the rocks move up and down as also sideways. (4) Surface waves are highly destructive.

Q. 11 Study the map and answer the following questions : *(1 Mark each)*

Make friends with maps ! (Textbook page 17

• Observe Figure 2.18 given on page 18 of the textbook and answer the following questions :

(1) Examine the plate boundaries in the given map and write the names of the plates.

Ans. (A) The main plates : (1) Pacific plate (2) Northern American plate (3) Southern American plate (4) Eurasian plate (5) African plate (6) Antarctic plate (7) Indo-Australian plate.

(B) Other plates : (1) Caribbean plate (2) Cocos plate (3) Nazka plate (4) Scotia plate (5) Somali plate (6) Arabia plate.

(2) On which side of the continents of the North and South America are the earthquake prone zones located? Which mountains are located there?

Ans. The earthquake-prone zones are located on the western side of the continents of the North and South nerica. In the North America, the Pacific Coastal Range (mountains) is located near the earthquake-prone ne. In the South America, the Andes Mountain is located near the earthquake- prone zone.

(3) In which mountainous zone in Asia does the earthquake-prone zone lie?

Ans. The earthquake-prone zone lies in Himalayas mountainous zone in Asia.

(4) In which region are the volcanoes concentrated in Africa? What could be the reason?

Ans. The volcanoes are concentrated in the eastern region in Africa. This area is near to Somali plate and at could be the reason for the concentration of the volcanoes in this region.

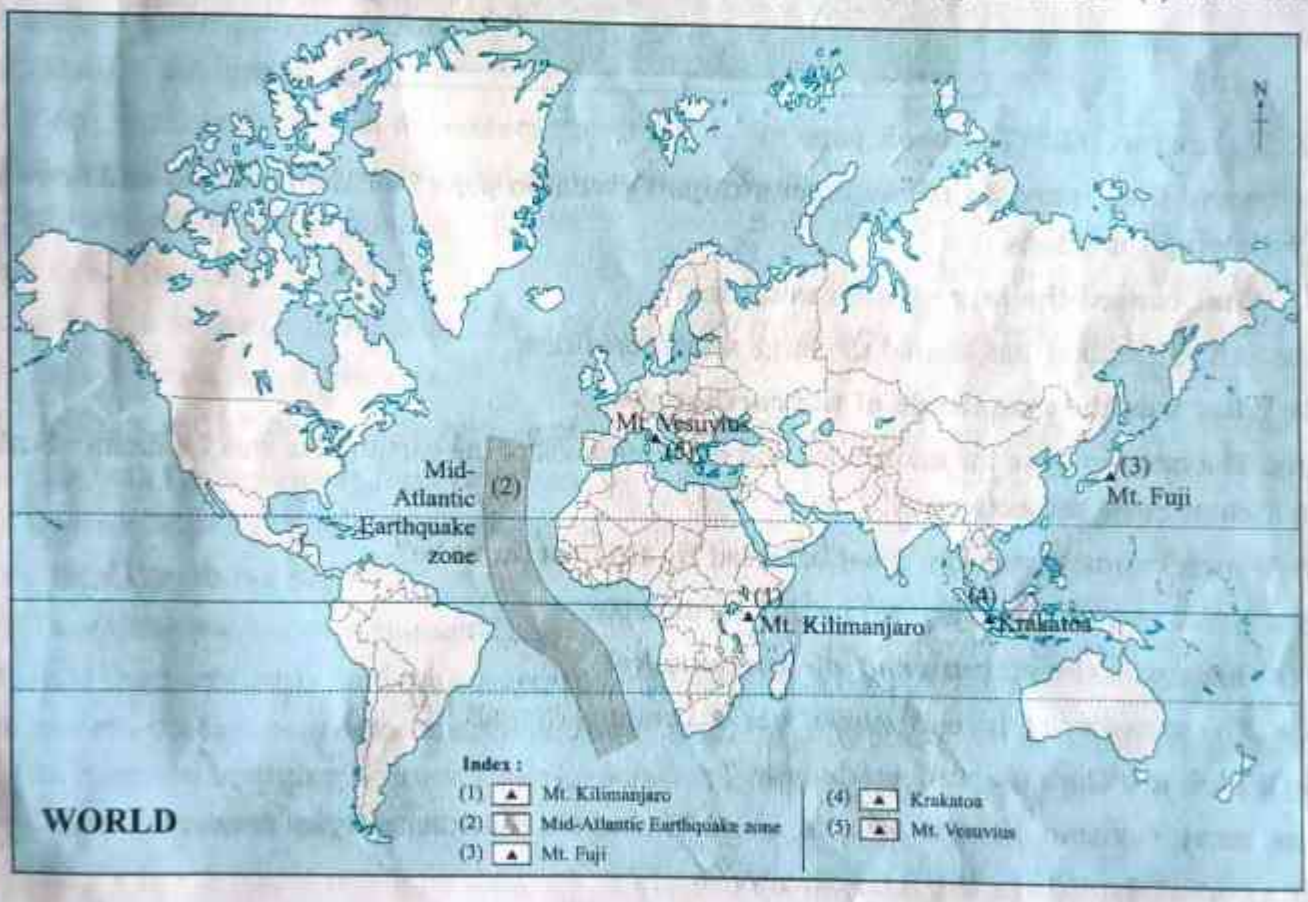
(5) Correlate earthquake regions, distribution of volcanoes and plate boundaries.

Ans. Most of the earthquake regions and volcanoes are located on the plate boundaries.

Q. 12 Make the following on a given outline map. Give Index : ***(1 Mark each)***

Show the following on a given outline map of the world :

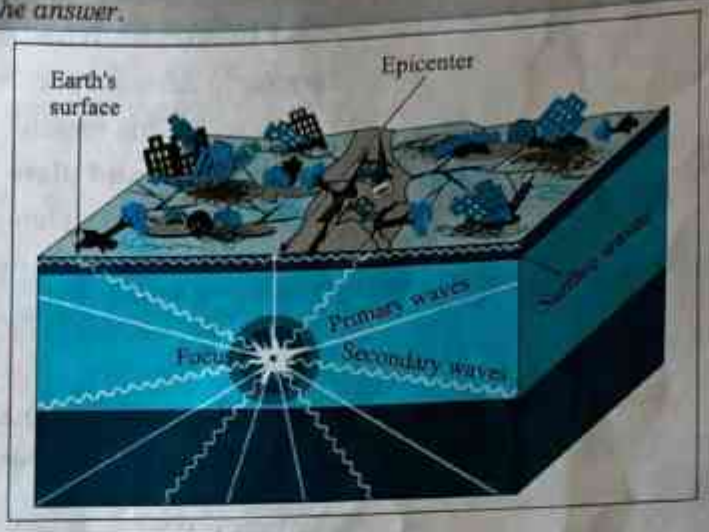
(1) Mt. Kilimanjaro (2) Mid-Atlantic Earthquake Zone (3) Mt. Fuji (4) Krakatoa (5) Mt. Vesuvius.



ACTIVITY BASED/OPEN ENDED QUESTIONS

*** Q. 1 Show the epicenter, focus and the primary, secondary and surface waves of an earthquake with the help of a neat labelled diagram :**

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answer.



Q. 2. Can you tell? (Textbook page 9)

- **Observe the Figure 2.1 (Newspaper snippet) given on page 9 of the textbook and answer the following questions :**

(1) What caused the large scale casualties?

Ans. An earthquake has caused the large scale casualties.

(2) What was the magnitude of the earthquake?

Ans. The magnitude of the mainshock and the aftershock of the earthquake was 7.9 Richter Scale and 6.6 Richter Scale respectively.

(3) Which country was the most affected by this earthquake?

Ans. Nepal was the most affected by this earthquake.

(4) Where was the epicenter of the earthquake?

Ans. The epicenter of the earthquake was at Lamjung (Nepal).

(5) Which are the other affected areas ?

Ans. India, Pakistan, Bangladesh, China and Bhutan are the other affected areas (nations).

(6) At what depth was the focus located?

Ans. The focus was located at the depth of 11 km below the earth's surface.

(7) What kind of damage is seen because of the earthquake?

Ans. The damage in the form of loss of life and property is seen because of the earthquake.

(8) According to you, what could be the reason behind the earthquake?

Ans. According to me, endogenetic movements could be the reason behind the earthquake.

(9) Have you ever experienced a similar earthquake? Discuss.

Ans. I have / have not experienced a similar earthquake.

(**Note** : Students are expected to write answer to this question on the basis of their own experiences.)

ACTIVITIES

(1) Try this. (Textbook page 9)

(1) Arrange your notebooks on each other. Place 3–4 objects like chalk, duster, sharpener, eraser, etc. on them as shown in Figure 2.2 (A) given on page 9 of the textbook.

(2) Now, quickly take out a notebook without affecting the others as shown in Figure 2.2 (B) given on page 10 of the textbook. Observe what happens and discuss in class.

(2) Try this. (Textbook page 10)

(1) Arrange the notebooks and keep chalk, duster, sharpener, rubber, etc. on them as shown in Figure 2.3 (A) given on page 10 of the textbook.

(2) Now, give a slight push to this structure as shown in Figure 2.3 (B) given on page 10 of the textbook and observe what happens. Then, again give a hard push. Observe what happens. Carry out a discussion on all these activities.

(3) Try this. (Textbook page 12)

Do activity 1 as shown in Figure 2.5 (A) and Figure 2.5 (B) given on page 11 of the textbook :

(1) Take a 30 cm long paper strip.

(2) Place your hands on both the ends of the strip.

(3) Move both the hands towards each other giving pressure on the strip.

(4) Observe what happens to the strip.

(4) Try this. (Textbook page 12)

Do activity 2 as shown in Figure 2.8 (A) and Figure 2.8 (B) given on page 12 of the textbook :

(1) Take a long strip of thin paper.

(2) Hold one end of the paper in your right hand. Hold the other in your left hand.

(3) Pull both the ends away from each other.

(4) Observe what happens to the paper strip.

(5) Try this. (Textbook page 13)

(1) Take three notebooks of the same size.

(2) Hold them on tightly on a table keeping a distance of 2–3 cm.

(3) Remove the two notebooks on each end away from the central one. Observe what happens. Draw the diagram emerging because of the notebooks in your own notebooks.

(6) Try this. (Textbook page 15)

(1) Hang a heavy bag of pouch on the hook of a spring balance as shown in Figure 2.13 (A) given on page 15 of the textbook.

(2) Pull the bag down and release it. Observe the spring and note the movement of spring.

(3) Stand holding the ends of the rope as shown in Figure 2.14 given on page 16 of the textbook. Ask one student to give a jerk to the rope by pulling it up and down with hand. Observe what happens and note the movement of rope.

(4) Spread 'rangoli' on a large plate as shown in Figure 2.15 given on page 15 of textbook. Flick on the lower side of the plate slightly with fingers. Observe what happens.

(5) Find out : After you complete all the three activities given above, compare them with each of the seismic waves and identify which activity is similar to which type of wave.

(7) Give it a try. (Textbook page 16)

Collect information regarding precautions to be taken during an earthquake. Give a demonstration in the class.

(8) Give it a try. (Textbook page 16)

Collect information and pictures related to advanced seismograms like the one shown in Figure 2.11 given on page 14 of the textbook. Write about its working mechanism in your own words.

*(9) Make a model showing the central and fissure type volcanoes.

***(10) Gather information through internet about earthquakes which have occurred in India in the past 10 years on the basis of the following points :** (1) Date (2) Time (3) Magnitude (Richter Scale) (4) Epicenter (5) Depth (In Kilometers) (6) Area affected (7) Loss / Damage caused. Make a record of gathered information in the table given on page 22 of the textbook and write conclusions.

Did you study the lesson/chapter from the **Navneet Digest?** Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

3 EXOGENETIC PROCESSES PART – 1

Points to be studied

- **Landforms** : Formation and types.
- **Weathering** : Meaning and types.
- **Mass movements** : Meaning and types.
- **Erosion** : Meaning and nature.

SUMMARY

3.1. Formation of landforms :

(1) Many primary and secondary landforms are formed due to the internal movements. For example, continents, mountains, plateaus, plains, etc.

(2) The external processes like weathering, erosion, transportation and deposition occur due to solar energy, gravitational force and kinetic energy associated with the moving objects on the earth's surface. Because of these external processes, the primary and secondary landforms give way to the tertiary landforms. For example, sand dunes, delta, U-shaped valleys, etc.

3.2. Weathering :

(1) Breaking or weakening of rocks is a natural phenomenon. It is called weathering. Mechanical (physical) weathering, chemical weathering and biological weathering are the three types of weathering.

(2) Mechanical weathering is dominant in arid climates. Chemical weathering is more effective in humid climates. Biological weathering occurs because of living organisms.

3.3. Mechanical weathering : The exposed part of the rock heats more while the inner part remains comparatively cooler. As a result, the outer layers of the rocks fall apart from the main rock. This is called exfoliation of the rock. Mechanical weathering mainly occurs because of the following reasons :

(1) **Temperature :** Due to change in temperature, the minerals in the rock expands and contracts gradually. As a result, cracks develop in rocks and they break. In areas where the diurnal range of temperature is higher, weathering of this type is common. For example, it is very common in hot desert.

(2) **Frost :** In areas where the temperature drop below 0°C for quite some time, the water accumulated in the cracks and crevices in the rocks freezes. This leads to tension in the rocks and they shatter.

(3) **Crystal growth :** In the alkaline water of sea, the soluble materials in the rocks get dissolved. This leads to formation of small holes in the rocks. Because of the heat, only crystals of alkaline materials remain in the rocks. Gradually, holes are formed in the rocks and rocks look like a honeycomb.

(4) **Release of pressure :** The outer layer of the rocks exert pressure on the lower layers. When this pressure ceases to exist, the lower or inner layers are freed from the pressure. This also leads to weathering.

(5) **Water :** Some areas experience more rainfall than others. In such areas, soaking of rock water also causes granular weathering of some rocks like sandstone, conglomerate, etc.

(6) **Cumulative effect of temperature and water :** Sometimes both temperature and water are responsible for weathering. Difference in temperature cause contraction and expansion of minerals in the rocks and it further leads to widening the joints or the cracks in the rocks. Water accumulates in such wide joints and big blocks of rocks separate from each other. This is called block disintegration.

3.4. Chemical weathering : Water is a universal solvent. The solubility increases because the matter has dissolved in water. And those materials which do not dissolve easily in water

get dissolved in such solutions. As its effect, chemical weathering occurs. In areas that receive heavy rainfall, chemical weathering occurs in the following way :

(1) **Carbonation :** Carbon dioxide in the air gets mixed in the rainwater leading to formation of dilute carbonic acid. Materials like limestone get easily dissolved in such acids.

(2) **Solution :** Some minerals in the rock get dissolved in water. Limestone is formed due to chemical precipitation between water and alkalis. Similarly, because of solution, alkalis in the rock dissolve and make them brittle.

(3) **Oxidation :** The process of oxidation occurs in rocks which have iron present in them. Due to oxidation, rust is formed on the rocks.

Explanation of Important terms :

(1) **Oxidation :** Reaction of any element with oxygen is called oxidation.

(2) **Universal solvent :** A solvent in which many soluble materials can get dissolved is called universal solvent. Water can dissolve number of materials. So water is called universal solvent.

3.5. Biological weathering :

(1) Biological weathering occurs due to human beings, animals and plants.

(2) Trees grow in cracks and crevices of rocks of old forts or buildings. Roots of trees grow bigger, they create tension in the rocks and start breaking them.

(3) Rats, mice, rabbits, etc. make burrows in the ground. Ants make large anthills. Because of the activities of these burrowing animals, biological weathering of rocks occurs.

(4) Algae, moss, lichen and other flora grow in the rocks. They also help in biological weathering.

Know this :

- **Moss :** Moss are the flowerless plants that grow in the areas of humid climates and moist shaded locations. Moss can be seen on the trunks of trees.

3.6. Mass movements (Mass wasting) :

(1) The weathered rock materials start moving along the slopes due to gravity and accumulate near the foothills or the gentler slopes. Gradually, the weathered particles form a conical heap at the foothills.

(2) The process of moving down of weathered particles due to gravity alone, is called mass movement or mass wasting.

(3) Mass movements occur in the following two ways :

1. **Rapid mass movements :** Rapid mass movements like rockfalls, landslides, land subsidence, etc. occur mostly in the regions having humid climates and steeper slopes. When it rains in such areas, the rainwater penetrates the weathered materials and their weight increases. The weathered materials move rapidly and come down the slope. Sometimes, the weathered materials do not move down but sink where they are. This is called slumping. Rapid mass movements may also occur because of earthquakes.

2. **Slower mass movements :** In the areas with dry climates and gentler slopes, soil creep is a common phenomenon. In periglacial regions along the slopes, small layers of soil accumulate because of the movements of soil. This is called solifluction.

3.7. Erosion :

(1) Like weathering and mass movements, erosion is also an external process. Erosion occurs through various agents.

(2) Wind, running water, glaciers, sea water and groundwater cause erosion.

QUESTIONS AND ANSWERS

Q. 1 Fill in the blanks with the appropriate options : *(1 Mark each)*

(1) Continent is an example of ..... landform. *(primary, secondary, tertiary)*

(2) Delta is an example of ..... landform. *(secondary, primary, tertiary)*

(3) ..... weathering occurs due to roots of trees. *(Mechanical, Chemical, Biological)*

Ans.

(1) Continent is an example of primary landform.

(2) Delta is an example of tertiary landform.

(3) Biological weathering occurs due to roots of trees.

Q. 2 Match the columns : *(1 Mark each)*

'A'	'B'
(1) Block disintegration	(a) Chemical weathering
(2) Burrowing animals	(b) Mechanical weathering
(3) Oxidation	(c) Biological weathering
(4) Delta	(d) Primary landform
	(e) Secondary landform
	(f) Tertiary landform

Ans.

(1) Block disintegration – Mechanical weathering

(2) Burrowing animals – Biological weathering

(3) Oxidation – Chemical weathering

(4) Delta – Tertiary landform.

Q. 3 Answer the following questions in one sentence each : *(1 Mark each)*

(1) Which agents do cause erosion?

Ans. Wind, running water, glaciers, sea water and groundwater cause erosion.

(2) What is meant by weathering?

Ans. The natural phenomenon of breaking or weakening of rocks is called 'weathering'.

(3) What are called tertiary landforms?

Ans. The landforms that are formed by external processes by bringing changes in primary and secondary landforms are called 'tertiary landforms'.

(4) What is meant by solifluction?

Ans. Accumulation of small layers of soil in periglacial regions along the slopes, because of movement of soil, is known as 'solifluction'.

***Q. 4 Write whether the following statements are True or False :** *(1 Mark each)*

Note : According to the question type included in Board's New Activity Sheet, only writing Right or Wrong is expected. Note, that rewriting the wrong sentence correcting them it is not expected.

(1) Climate affects earthquakes.

Ans. False.

(2) Mechanical weathering is less effective in humid climate.

Ans. True.

(3) Mechanical weathering happens on a large scale in dry climates.

Ans. True.

(4) The breaking down of rocks into smaller particles is called weathering.

Ans. True.

(5) Lateritic rocks are formed through exfoliation.

Ans. False.

***Q. 5 Identify the types of weathering from the given description :** *(1 Mark each)*

(1) Some animals live inside the grounds by making burrows.

Ans. Biological weathering.

(2) The rock rusts.

Ans. Chemical weathering.

(3) Water which has accumulated in the crevices of the rocks freezes. Consequently, the rock breaks.

Ans. Mechanical weathering.

(4) The pipes supplying water in colder regions break.

Ans. Mechanical weathering.

(5) Sand formation occurs in deserts.

Ans. Mechanical weathering.

Q. 6 Write short notes : *(2 Marks each)*

(1) Exfoliation.

Ans. (1) The exposed part of the rock heats more while the inner part remains comparatively cooler. (2) As a result, the outer layer of the rocks fall apart from the main rock. This is called 'exfoliation' of the rocks. Exfoliation is a type of mechanical weathering. In exfoliation the outer layers of a rock peel off like the layers of an onion.

(2) Block disintegration.

Ans. (1) Sometimes, both temperature and water are responsible for weathering. (2) Difference in temperature cause contraction and expansion of metals in the rocks. This further leads to widening of joints or the cracks in the rocks. (3) Water accumulates in such wide joints and big blocks of rocks separate from each other. (4) This is called 'block disintegration'. Block disintegration is a type of mechanical weathering.

(3) Carbonation.

Ans. (1) The rainwater travels through atmosphere before reaching the ground. Carbon dioxide in the air gets mixed on the rainwater during this process and dilute carbonic acid gets formed. (2) For example, Water + Carbon dioxide = Carbonic acid. ($H_2O + CO_2 = H_2CO_3$) (3) Materials like limestone get easily dissolved (weathering) in such acids. Carbonation is a type of chemical weathering.

(4) Solution.

Ans. (1) Some minerals in the rock get dissolved in water. (2) Limestone is formed due to chemical precipitation between water and alkalis. (3) Similarly, because of solution, alkalies in the rock dissolve and make them brittle. (4) At Wadgaon Darya in Ahmadnagar district, limestone gets precipitated chemically i.e. undergoes chemical weathering again.

(5) Oxidation.

Ans. (1) The process of oxidation occurs in rocks which have iron present in them. (2) The iron in the rocks come in contact with water and chemical reaction takes place between iron and oxygen. (3) Hence, a reddish coloured layer forms on rocks. This is called rust. (4) The process of oxidation leads to chemical weathering of rocks.

Q. 7 Give geographical reasons for the following : *(3 Marks each)*

(1) Change in the temperature leads to mechanical weathering .

Ans. (1) Due to change in temperature, the minerals in the rock expands and contracts gradually. (2) Similarly, each mineral reacts differently to the change in temperature. Some minerals expand more while others do not expand as much. (3) As a result, cracks develop in rocks and they break. (4) In areas where the diurnal range of temperature is higher, weathering of this type is common. For example, it is very common in hot desert. In this way, change in the temperature leads to mechanical weathering.

(2) Frost leads to mechanical weathering.

Ans. (1) In areas where the temperature drop below 0°C for quite some time, the water accumulated in the cracks and crevices in the rocks freezes. (2) The volume of water increases when it freezes. (3) The increase in the volume leads to tension in the rocks and they shatter. In this way, frost leads to mechanical weathering.

(3) Granular weathering of sandstone and conglomerate takes place.

Ans. (1) Sandstone and conglomerate are formed because of pressure on the agglomeration of sand particles. (2) Mud also makes sand particles to come together. (3) When water penetrates such rocks, the particles get loose and separate from main rock. This process is called granular weathering. Thus, granular weathering of sandstone and conglomerate takes place.

(4) Solution and crystal growth leads to mechanical weathering.

Ans. (1) In the rocky coasts, waves hit the sea cliff. The sea water is alkaline. (2) Some water droplets hit the cracks in the rock. In this alkaline water, the soluble materials in the rock gets dissolved. This leads to formation of small holes in

the rocks. This is the effect of solution. (3) Alkaline water gets stored in these holes. Because of the heat, only crystals of alkaline materials remain in the rocks and gradually holes are formed in the rocks. As its effect rocks look like a honeycomb. This is an effect of crystal growth. Thus, solution and crystal growth leads to mechanical weathering.

(5) Water plays an important role in chemical weathering.

Ans. (1) Rock is a mixture of many minerals. (2) Many things get dissolved easily in water. Thus, water is a universal solvent. The solubility increases because the matter gets dissolved in water. (3) Water speeds up the processes of carbonation, solution and oxidation. These processes lead to weathering of rocks. Thus, water plays an important role in chemical weathering.

Q. 8 Explain the following : *(4 Marks each)*

***(1) What is mechanical weathering?**

Ans. (1) Breaking or weakening of rocks without any change in their chemical composition is called mechanical weathering. (2) Exfoliation, granular weathering and block disintegration are the types of mechanical weathering.

***(2) What are the main types of chemical weathering?**

Ans. (1) The process of decomposition of rocks by changes in the chemical composition of it is called chemical weathering. Carbonation, solution and oxidation are the main types of chemical weathering. (2) Dilute carbonic acid is formed in rainwater before it reaches the ground. This process is known as carbonation. Materials like limestone gets easily dissolved (weathering) in such acid. (3) Some minerals in the rock get dissolved in water. This process is known as solution. Due to solution, alkalis in the rock dissolve and make them brittle. (4) The iron in the rock comes in contact with water and chemical reaction takes place between iron and oxygen. This process is known as oxidation. Oxidation leads to chemical weathering of rocks.

***(3) How does biological weathering occur?**

Ans. (1) Biological weathering occurs because of human beings, animals and plants. (2) Trees grow in cracks and crevices of rocks of old forts or buildings. Roots of trees grow bigger, they create tension in the rocks and start breaking them. (3) Rats, mice, rabbits, etc. make burrows in the ground. Ants make large anthills. Because of the activities of these burrowing animals, biological weathering of rocks occurs. (4) Algae, moss, lichen and other flora grow in the rocks. They also help in biological weathering.

***(4) Distinguish between weathering and mass wasting.**

Ans. (1) Breaking or weakening of rocks is called weathering. The process of moving down of weathered particles due to gravity alone is called mass wasting. (2) Mechanical weathering, chemical weathering and biological weathering are the three types of weathering. Rapid mass wasting and slower mass wasting are the types of mass wasting.

(5) Differentiate between weathering and erosion.

Ans. (1) Breaking or weakening of rocks is called weathering. (2) The movement of weathered particles due to various agents like wind, running water, glaciers, sea water and groundwater is called erosion. (3) Mechanical weathering, chemical weathering and biological weathering are the types of weathering. (4) Erosion by wind, erosion by running water, erosion by glaciers, erosion by sea water and erosion by groundwater are the types of erosion.

(6) What are the types of landforms?

Ans. (1) Primary landforms, secondary landforms and tertiary landforms are the types of landforms. (2) Many primary and secondary landforms are formed due to the internal movements. For example, continents, mountains, plateaus, plains, etc. (3) The external processes like weathering, erosion, transportation and deposition occur due to solar energy, gravitational force and kinetic energy associated with the moving objects on the earth's surface. (4) Because of these external processes, the primary and secondary landforms give way to the tertiary landforms. For example, sand dunes, delta, U-shaped valleys, etc.

(7) How does the release of pressure lead to weathering?

Ans. (1) The outer layer of the rocks exert pressure on the inner or lower layers. (2) When this pressure creases to exist, the lower or inner layers get freed from the pressure. (3) This leads to disintegration of rocks. Thus, the release of pressure leads to weathering.

Q. 9 Answer the following question in detail : *(4 Marks each)*

Q. What is mass movements? What are the types of mass movements?

Ans. (A) Meaning : (1) The process of moving down of weathered particles due to gravity alone is called 'mass movement'. (2) It is also known as mass wasting. (3) The weathered rock materials start moving along the slopes due to gravity and accumulate near the foothills or the gentler slopes. (4) Gradually weathered particles form a conical heap at the foothills.

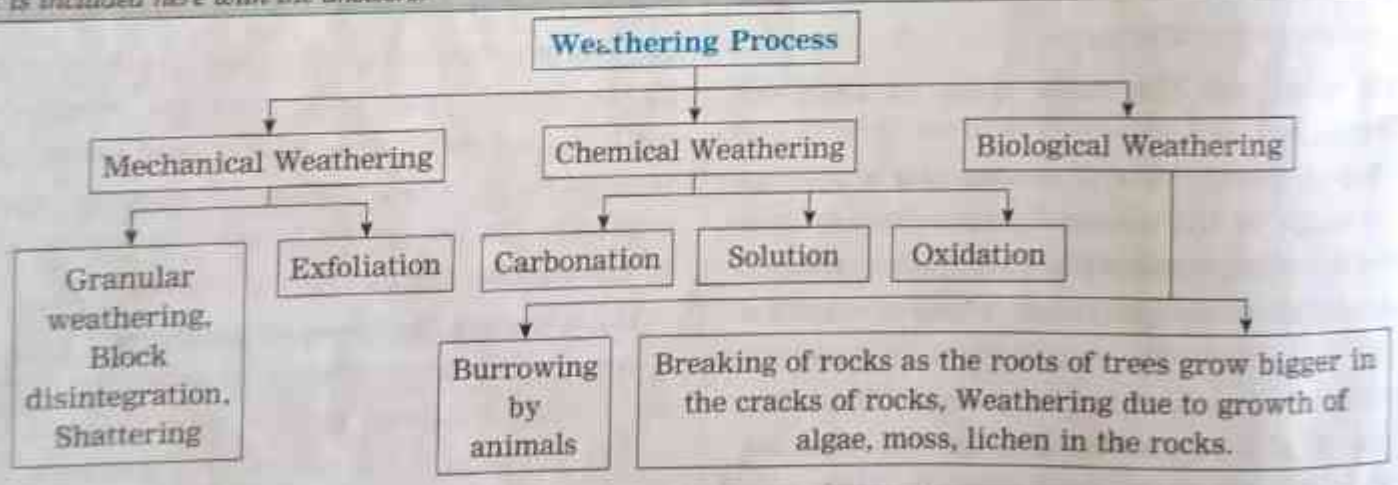
(B) Types : The following are the two types mass movements :

(1) Rapid mass movements : Rapid mass movements like rockfalls, landslides, land subsidence, etc. occur mostly in the regions having humid climates and steeper slopes. When it rains in such areas, the rainwater penetrates the weathered materials and their weight increases. The weathered materials move rapidly and come down the slope. Sometimes, the weathered materials do not move down but sink where they are. This is called slumping. Rapid mass movements may also occur because of earthquakes.

(2) Slower mass movements : In the areas with dry climates and gentler slopes, soil creep is a common phenomenon. In periglacial regions along the slopes, small layers of soil accumulate because of the movements of soil. This is called solifluction.

***Q. 10 Complete the following flowchart : (Note : The answer is given directly.)**

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type it is included here with the answers.



ACTIVITY BASED/OPEN ENDED QUESTIONS

Q. 1. Can you tell? (Textbook page 23)

- **Observe the pictures given on page 23 and 24 of the textbook. Observe the physical appearance of the rocks in each picture. You can see that rocks are broken, fractured and have holes in them. In a picture you can also see that the statue has been deformed. Think about why the rocks are in such a condition and briefly tell the reasons you can think of. (Discuss the reasons. Check with the teachers if your reasons are relevant.)**

Ans. The reasons for the different conditions of rocks shown in textbook may be as follows :

(1) Due to heat of the sun, the rocks may be heating up during daytime and must be cooling down at night. This everyday's change in the temperature, may be leading to breaking of rocks.

(2) Every day, sea waves hit the rocks on the coasts. This may be leading to fracturing and breaking of rocks on the sea coast.

(3) Due to humidity and heat, holes might have formed in the rocks and therefore statue might have deformed.

(4) Due to activities of ants, rats, mice, rabbits, other worms, insects, etc. small holes must have formed in soft rocks. This might have lead to their breaking.

Q. 2. Try this. (Textbook page 26)

- **Do the experiment as shown in Figure 3.5 given on page 26 of the textbook and answer the following questions :**

(1) Did the colour of the water change?

Ans. Yes. The colour of the water changed to white.

(2) What happened to the chalk?

Ans. Chalk dissolved in the water.

Q. 3. Try this. (Textbook page 26)

- **Do the experiment as shown in Figure 3.6 given on page 26 of the textbook and answer the following questions :**

(1) Are there any stains on the cloth?

Ans. Yes. There are some stains on the cloth.

(2) Which colour are they?

Ans. They are reddish / brown in colour.

(3) What could be the reason for the stains?

Ans. As the cloth is wet, reddish / brown rust must have formed on the iron nails wrapped in it. This could be the reason for the stains.

Q. 4. Let's recall. (Textbook page 27)

- **Have you seen the process of biological weathering around you?**

Ans. I have seen the process of biological weathering in my locality. Many trees were grown in the cracks of old building located near to my school. Due to the roots of these trees, many walls and slabs of this building were broken.

(**Note** : The students are expected to write answer to this question as per their own experiences.)

ACTIVITIES

(1) Try this. (Textbook page 24)

(1) Take an onion. (2) Cut it in the middle.

(3) Observe the cut parts. (4) Try to remove each skin layer of these parts.

(Try this to understand the process of exfoliation.)

*(2) Using internet, look for incidences of a few landslides that have occurred in India and write about them briefly.

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

4 EXOGENETIC PROCESSES PART – II

Points to be studied

Erosional, transportational and depositional work of agents :
- Works of river and landforms.
- Works of glacier and landforms.
- Works of wind and landforms.
- Works of sea waves and landforms.
- Works of groundwater and landforms.

SUMMARY

4.1. Erosional, transportational and depositional work of agents :

(1) The agents like running water (river), glacier, wind, sea waves and groundwater do the work of erosion, transportation and deposition.

(2) Because of these agents, the earth's surface keeps on changing and new landforms are formed.

4.2. Works of river and landforms : When many flows of water come together, a river is formed. The slope of the land, the type of rock, volume of water flowing in river, the length of flow, volume of sediments in the river, etc. are the factors on which the erosional, transportational and depositional work of the river depends.

(1) **Erosional work of river :** The riverbed and the river banks get eroded because of the fast flow of water, sand particles, pebbles and the various tributaries joining the main river. All these lead to the formation of gorges (canyons), V-shaped valleys and waterfall.

(2) **Transportational and depositional work of river :** At the foothills, the change in the slope causes deposition of coarse sediments leading to formation of alluvial fans. Due to decreased speed, the sediments of river get deposited in its bed and on its banks. This leads to formation of flood levees, flood plains and deltas.

4.3. Works of glacier and landforms : In regions where the temperatures are generally below freezing points, precipitation is in the form of snowfall. Layers of snow accumulate on the earth's surface because of snowfall. The heavy weight of these overlaying layers makes the snow move along the slope. At the base of the layer, the snow starts melting because of the friction and pressure from above. Thus, glacier starts moving slowly along the slope.

(1) **Erosional work of glacier :** Glacier erodes its own banks and its bed on a large scale. The erosional work of glacier produces landforms like cirques, arêtes, horns, U-shaped valleys, hanging valleys and ròche moutonnées.

(2) **Transportational and depositional work of glacier :** Glacier carries sediments with it. The depositional work of glacier produces landforms like moraines, drumlins, eskers, etc.

Explanation of Important terms :

(1) **Eskers :** Narrow, long and winding ridges produced through deposition of moraines are called 'eskars'.

(2) **Drumlines :** Egg-shaped hills that are formed due to deposition of moraines are called drumlines.

4.4. Works of wind and landforms : The movement of air is called wind. The erosional, transportational and depositional work of wind is more prominent in deserts and semi-arid regions. Mechanical weathering occurs on a large scale in such regions. Powdered rock and sand particles are transported along the wind over long distances and get deposited where the speed of the wind reduces.

(1) **Erosional work of wind :** Due to friction, sand particles and small pebbles erode rocks coming in the way of wind. This leads to formation of mushroom rocks, deflation hollows, yardang, etc.

(2) **Transportational and depositional work of wind :** The fine particles are carried over larger distances by wind. The larger particles get transported to shorter distances only. These sand particles get deposited in deserts and semi-arid regions. This leads to formation of sand dunes, barchans, seifs, ripple marks, loess plains, etc.

4.5. Works of sea waves and landforms : Sea waves carry out erosional, transportational and depositional work in the coastal areas. Winds and tides cause movements of sea water and as a result, waves come to the coast. Because of their hitting, the rocks at the coasts are eroded. In coastal areas having wide beaches, waves carry depositional work.

(1) **Erosional work of sea waves :** When the waves break at the coast, they bring with them water, transported stones, pebbles, sand particles, etc. These materials erode the coast. This leads to formation of landforms like wave-cut platforms, sea caves, sea aches, sea cliffs, etc.

(2) **Transportational and depositional work of sea waves :** The eroded materials in sea bed keeps on moving towards the coast and away from the coast. It gets deposited where the effects of waves is less. This leads to formation of beaches, sand bars, lagoons, etc.

4.6. Works of groundwater and landforms : The rainwater seeps below the earth's surface through porous rocks or cracks in the rocks. This water accumulates in the non-porous layer of the rock. This accumulated water is called groundwater.

(1) **Erosional work of groundwater :** The soluble minerals in the water get dissolved and flow with the groundwater. This erosional work leads to formation of sinkholes and limestone caves.

(2) **Transportational and depositional work of groundwater :** When the groundwater evaporates or the volume of soluble minerals is more than the solubility of the groundwater, the deposition of dissolved materials starts. This leads to formation of landforms like stalactites and stalagmites.

Know this :

(1) **Precipitation :** Precipitation is a process of solidification of a previously dissolved substance from a solution. The stalactites and stalagmites fromed in limestone landscape are a result of precipitation.

(2) **Caves :** Open hollow spaces formed beneath the ground are called caves. Caves are naturally formed. Similarly they can be man-made.

QUESTIONS AND ANSWERS

Q. 1 Complete the following statements by choosing the appropriate alternatives from those given in the brackets : *(1 Mark each)*

(1) Loess plains are formed due to ..... work. *(erosional, transportational, depositional)*

(2) Cirques are formed due to ..... work of glaciers. *(erosional, depositional, transportational)*

(3) Deposition of coarse sediments in a triangular shape near river mouth is called ..... *(flood levees, deltas, potholes)*

Ans.

(1) Loess plains are formed due to depositional work.

(2) Cirques are formed due to erosional work of glaciers.

(3) Deposition of coarse sediments in a triangular shape near river mouth is called deltas.

Q. 2 Match the columns : *(1 mark each)*

(1) 'A' (Agent)	'B' (Landform)
(1) Groundwater	(a) Waterfall
(2) Wind	(b) Sinkhole
(3) River	(c) Mushroom rock
(4) Glacier	(d) Sea waves
	(e) Eskers
	(f) Sand particles

Ans. (1) Groundwater – Sinkhole

(2) Wind – Mushroom rock

(3) River – Waterfall

(4) Glacier – Eskers.

(2) 'A' (Agent)	'B' (State)
(1) Wind	(a) Solid
(2) River	(b) Gaseous
(3) Glacier	(c) Liquid
(4) Sea waves	(d) Caves
	(e) Lagoons
	(f) Sinkhole

Ans. (1) Wind – Gaseous

(2) River – Liquid

(3) Glacier – Solid

(4) Sea waves – Lagoons.

Q. 3 Answer the following questions in one sentence each : *(1 Mark each)*

(1) What is called wind?

Ans. The movement of an air is called 'wind'.

(2) How is a river formed?

Ans. A river is formed when many 'flows of water' come together.

***(3) List the landforms that are a result of the erosional work of the rivers.**

Ans. The landforms that are a result of the erosional work of the rivers are as follows : (1) Gorges (Canyons) (2) V-shaped valley (3) Potholes (4) Waterfall.

***(4) List the landforms that are produced by the depositional work of the sea waves.**

Ans. The landforms that are produced by the depositional work of the sea waves are as follows : (1) Beach (2) Sandbars (3) Lagoons.

***Q. 4 Rewrite the correct statements :** *(1 Mark each)*

Note : According to the question type included in Board's New Activity Sheet, only writing Correct or Incorrect is expected. Note, that rewriting incorrect sentence recorrecting them it is not expected.

(1) The temperature range helps the wind in its work.

Ans. Correct.

(2) River's work is more prominent than other agents of erosion in desert regions.

Ans. Incorrect.

(3) The work of groundwater is effective in the area with soft rocks.

Ans. Correct.

(4) The work of wind is not limited like river, glacier or sea waves and takes place anywhere.

Ans. Correct.

***Q. 5 Correct and rewrite the incorrect statements :** *(1 Mark each)*

Note : According to the question type included in Board's New Activity Sheet, only writing Correct or Incorrect is expected. Note, that rewriting incorrect sentence recorrecting them it is not expected.

(1) The ice on the lateral side of the glacier moves faster than the ice at the base.

Ans. Incorrect.

(2) The depositional work by rivers happens because of gentle slope, reduced speed and transported sediments.

Ans. Correct.

(3) A river flows at a faster speed than the glacier.

Ans. Correct.

(4) The speed of the glacier is more on both the banks than in the middle.

Ans. Incorrect.

***Q. 6 Identify the wrong pair :** *(1 Mark each)*

(1) Deposition – V-shaped valley.

(2) Transport – Ripple marks.

(3) Erosion – Mushroom rocks.

Ans. Deposition – V-shaped valley.

***Q. 7 Complete the following table by classifying the landforms according to their agents of erosion :**

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

(Waterfall, Delta, Cirque, Arête, Barchans, Moraine, Pothole, Mushroom rock, Sinkhole, Beach, Lagoons, Pillars)

Ans.

Rivers	Wind	Glacier	Sea waves	Groundwater
Waterfall, Delta, Pothole.	Barchans, Mushroom rock.	Cirque, Arête, Moraine.	Beach, Lagoons.	Sinkhole, Pillars.

Q. 8 Write short notes : *(2 Marks each)*

(1) Erosional work of river.

Ans. (1) A river originate at a much higher altitude from the sea level. (2) At the area of its origin, the river flow at a greater speed therefore, its power to erode is great. (3) The river bed and river banks get eroded because of the fast flow of water, sand particles, pebbles, etc. and the various tributaries joining the main river. (4) The landforms like gorges (canyons), V-shaped valleys, potholes and waterfalls are formed due to erosional work of river.

(2) Transportational and depositional work of river.

Ans. (1) A river flows down the slope from a hilly region. (2) At the foothills, the change in the slope causes deposition of coarse sediments. This leads to formation of alluvial fans. (3) As the steepness of the slope decreases, the transportational capacity of a river reduces and it start flowing slowly. River bends (meanders) often in its ways in an effort to cross even small obstacles. The sediments of the river get deposited on its bed and on its banks. (4) The landforms like flood levees, flood plains, deltas, etc. are formed due to transportational and depositional work of a river.

(3) Erosional work of glacier.

Ans. (1) Though the velocity of a glacier is less, the mass of the ice is more and hence the glacier erodes its own banks and its bed on a large scale. (2) The landforms like cirques, arêtes, horns, U-shaped valleys, hanging valleys and rôche moutonnées (sheepback) are formed due to erosional work of a glacier.

(4) Transportational and depositional work of glacier.

Ans. (1) A glacier carries sediments with it. This sediment is called moraine. (2) Thus, moraines are formed due to transportational and depositional work of a glacier. (3) Depending on the location of the deposits, moraines can be divided into ground moraine, lateral moraine, medial moraine and terminal moraine. (4) The landforms like drumlins and eskers are also formed due to transportational and depositional work of a glacier.

(5) Erosional work of wind.

Ans. (1) Erosional work of wind is more prominent in deserts and semi-arid regions. (2) Wind carries small sand particles, small pebbles, etc. along it. (3) Due to friction, these particles cause erosion along rocks coming in the way. (4) The landforms like mushroom rocks, deflation hollows, yardangs, etc. are formed due to erosional work of wind.

(6) Transportational and depositional work of wind.

Ans. (1) Transportational and depositional work of wind is more prominent in desert and semi-arid regions. (2) In deserts and semi-arid regions, mechanical weathering occurs on a large scale. As its effect powdered rock and sand spreads over a

large areas. There is hardly any obstacle in the transportational work of wind. (3) Sand particles which are very fine are carried over larger distances while the larger ones get transported to shorter distances only. (4) These sand particles get deposited in deserts and semi-arid regions. The landforms such as sand dunes, barchans, seifs, ripple marks, loess plains, etc. are formed by transportational and depositional work of wind.

(7) Erosional work of sea waves.

Ans. (1) When the sea waves break at the coast, they bring with them water, transported stones, pebbles, sand particles, etc. (2) Due to friction, the sea coast gets eroded. (3) The chemical and hydraulic action of the sea waves also lead to erosion of sea coast. (4) The landforms like wave-cut platforms, sea caves, sea arches, sea cliffs, etc. are formed due to erosional work of sea waves.

(8) Transportational and depositional work of sea waves.

Ans. (1) The eroded materials accumulate at the sea bed. (2) Due to tides, the eroded materials keep on moving towards the coast and away from the coast. (3) The eroded materials become fine because of attrition and hitting each other. Deposition of such materials occur at the places where the effect of waves is less. (4) The landforms such as beaches, sand bars, lagoons, etc. are formed due to transportational and depositional work of sea waves.

(9) Erosional work of groundwater.

Ans. (1) The soluble minerals in the water get dissolved and flow with the groundwater. This is called erosional work of groundwater. (2) The landforms like sinkholes and limestone caves are formed due to erosional work of groundwater.

(10) Transportational and depositional work of groundwater.

Ans. (1) When the groundwater evaporates or the volume of soluble minerals is more than the solubility of the groundwater, the deposition of dissolved materials starts. This is called transportational and depositional work of groundwater. (2) The landforms [illegible] stalactites and stalagmites are formed due to transportational and depositional work of groundwater.

(11) Groundwater table.

Ans. (1) The upper surface of the water accumulated below the ground is called the 'water table'. (2) Factors like seasons, porosity of rocks, amount of rainfall, etc. affect the level of water table. The water table is closer to the ground during rainy seasons while it is deeper in the summers.

Q. 9 Explain the following : *(4 Marks each)*

***(1) Which agent is responsible for formation of stalactites and stalagmites and where are they formed?**

Ans. (1) Groundwater is responsible for formation of stalactites and stalagmites. (2) In the areas of limestone, the alkaline water seeps at the top of the limestone caves. When this water evaporates, minerals get deposited at the bottom and at the top of the limestone caves. As its effect, stalactites and stalagmites are formed there.

(2) Name the types of moraines. OR Explain the types of moraines.

Ans. (1) Ground moraine, lateral moraine, medial moraine and terminal moraine are the types of moraines. (2) The material deposited at the base of a glacier is called ground moraine. The material deposited along the banks of a glacier is called lateral moraine. (3) After the confluence of two glaciers, the moraine deposited in the central part of the glacier is known as medial moraine. (4) At the end where a glacier turns into a stream, huge quantity of moraine is deposited. The stream water is unable to carry the moraine further. As the deposited moraine is at the terminal part of a glacier, it is called terminal moraine.

(3) Which factors determine the deposition of sediments?

Ans. (1) The factors like the length of the rivers, volume of water, amount of sediments, etc. determine the deposition of sediments. (2) Similarly, the slope of the river and the earth's surface also determine the deposition of sediments.

(4) How is a glacier formed?

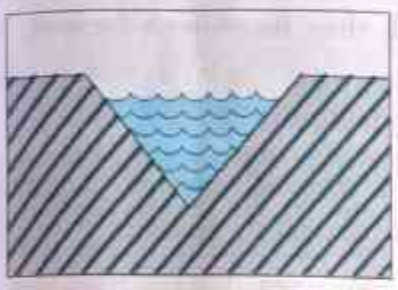
Ans. (1) In regions where the temperatures are generally below freezing points, precipitation is in the form of snowfall. (2) Layers of snow accumulate on the earth's surface because of snowfall. (3) The heavy weight of these overlaying layers makes the snow move along the slope. (4) At the base of the layer, the snow starts melting because of the friction and pressure from above and it starts moving slowly along the slope. Thus, a glacier is formed.

(5) What is meant by groundwater?

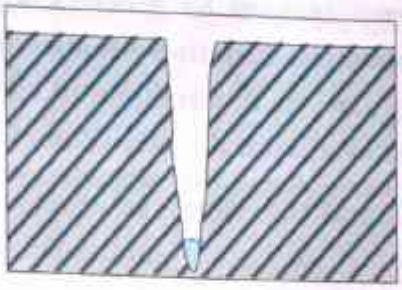
Ans. (1) The rainwater seeps below the earth's surface through porous rocks or cracks in the rocks. (2) This water accumulates in the non-porous layer of the rock. This accumulated water is called groundwater.

Q. 10 Identify and name the landforms in the following diagrams :

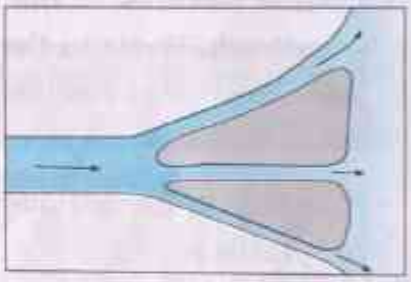
Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.



(A)



(B)



(C)

Ans. (A) V-shaped valley, (B) Gorge (canyon), (C) Delta.

ACTIVITY BASED/OPEN ENDED QUESTIONS

Q. 1. Can you tell? (Textbook page 30)

(1) How will you differentiate between a rill, gully, stream and a river?

Ans. We can differentiate between a rill, gully, stream and a river as follows : (1) The smallest natural flow of rainwater is called a rill. (2) Many rills come together and form a gully. (3) Many gullies come together and form a stream. (4) Many streams come together and form a big flow of water. This big flow of water is called a river.

(2) What is a river?

Ans. (1) Running water flows naturally in a direction according to gravity along the slope and makes its own way. (2) This is called flow of water. (3) Many such flows come together and form a huge water flow. This is called a river.

Q. 2. Give it a try. (Textbook page 31)

- **Some pictures of various landforms formed by the river are given on page 30 and 31 of the textbook. See them. Write the type of work done by the river in formation of those landforms in the box given below the picture in textbook.**

Ans. The type of work done by the river in formation of various landforms can be written (in the box given below the picture in textbook) with the help of the following table :

Landforms formed due to erosional work of the river.	Landforms formed due to transportational and depositional work of the river
Gorges (canyons), V-shaped valleys, potholes, waterfalls.	Meanders, ox-bow lakes, flood levees, flood plains, Delta regions, alluvial fans.

Q. 3 Think about it. (Textbook page 31)

- **Many creeks are found in the coastal areas of Konkan but no delta. Why?**

Ans. (1) The rivers of long length deposit sediments at their mouth. (2) Such rivers become very wide and their speed becomes very slow when they meet a sea. (3) Many rivers in Konkan are of short length and their speed is comparatively high. (4) They bring less sediments with them and acts as very narrow inlet to the sea. Therefore many creeks and no deltas are found in the coastal areas of Konkan.

Q. 4. Find out. (Textbook page 31)

- **Is there any lake found near the meanders of the river? Obtain information about this.**

Ans. (1) Lakes are found near the meanders of rivers. (2) During floods, the river flows a straight path, leaving behind the meander. (3) As its effect, the crescent shaped water body gets cut off from the main stream and a lake is formed . (4) Such lakes are called ox-bow lakes.

Q. 5. Give it a try. (Textbook page 32)

- **Some pictures of the landforms formed by glaciers are given on page 32 and 33 of the textbook. Write in the box below the function because of which they have been formed.**

Ans. The type of function done by glaciers in formation of various landforms can be written (in the box given below the picture in textbook) with the help of the following table :

Landforms formed due to erosional function of glaciers	Landforms formed due to transportational and depositional function of glaciers
cirques, arêtes, matterhorns, U-shaped valleys, hanging valleys, roche moutonnées (sheepbacks).	Moraines (ground moraines, lateral moraines, medial moraines and terminal moraines), drumlins, eskers.

Q. 6. Can you tell? (Textbook page 33)

(1) Where can you see the work by glaciers in India?

Ans. We can see the work of glaciers in Himalayas Range in India.

(2) In which natural region can you see the work of glaciers at sea level?

Ans. We can see the work of glaciers at sea level in polar region.

Q. 7. Think about it. (Textbook page 33)

- **Can you see a glacier moving just as you can observe the movement of river water?**

Ans. As glacier is a body of solid ice, its speed of movement is comparatively slow. (2) As river is a body of liquid water, its speed of movement is comparatively fast. Therefore, we cannot see a glacier moving just as we can observe the movement of river water.

Q. 8. Give it a try. (Textbook page 34)

- **Some pictures of landforms produced by the work of the winds are given on page 34 and 35 of the textbook. See the pictures and write in the box whether they have been formed by erosion or deposition.**

Ans. The type of function of wind in formation of various landforms can be written (in the box given below the picture in textbook) with the help of the following table :

Landforms formed due to erosional function of wind	Landforms formed due to transportational and depositional function of wind
Deflation hollows, mushroom rock, yardang.	Sand dune (Barchan and Seif), Ripple marks, Hamada, loess plains.

Q. 9. Find out. (Textbook page 35)

(1) Where will you find mushroom rocks in the Deccan Plateau?

Ans. We will find mushroom rocks in the regions of heighted rocks in the state of Maharashtra, Karnataka and Telangana in the Deccan Plateau.

(2) Can you find the work of wind near coastal areas? What landforms will be formed there?

Ans. The work of wind can be found near coastal areas. The erosional, transportational and depositional work of sea waves is prominently responsible for formation of various landforms near coastal areas. The work of wind supports the work of sea waves in forming these landforms.

Q. 10. Give it a try. (Textbook page 36)

- **Some pictures of landforms produced by the work of sea waves are given on page 36 and 37 of the textbook. See the pictures and write in the box whether they have been formed by erosion or deposition.**

Ans. The type of function of wind in formation of various landforms can be written (in the box given below the picture in textbook) with the help of the following table :

Landforms formed due to erosional function of sea waves	Landforms formed due to transportational and depositional function of sea waves
Sea cliff, sea caves, sea arch, wave-cut platform.	Beach, sand bar, lagoon.

Q. 11. Give it a try. (Textbook page 38)

- **See the pictures of the landforms produced by the work of groundwater. Write in the box below them whether they are formed through the work of erosion or deposition.**

Ans. The type of work of groundwater in formation of various landforms can be written (in the box given below the picture in textbook) with the help of the following table :

Landforms formed due to erosional function of groundwater	Landforms formed due to transportational and depositional function of groundwater
Sinkhole, cave.	Stalactite and stalagmite.

Q. 12. Find out. (Textbook page 38)

(1) Where are limestone caves, stalactites and stalagmites found in Maharashtra?

Ans. Limestone caves, stalactites and stalagmites are found at Kanhur Plateau in Ahmadnagar district in Maharashtra.

(2) Why are the landforms formed in limestone called Karst?

Ans. (1) The Karst is a limestone region located near Adriatic Sea. (2) Many landforms formed in limestone are found in this region. These landforms are studied on a large scale. Therefore, the landforms formed in limestone are called Karst.

Q. 13. Think about it. (Textbook page 38)

- **Ramu has to dig a well in his farm. But he is in a dilemma as to which season he should dig so that there is water supply for a longer time. What will you suggest to Ramu?**

Ans. (1) We will suggest Ramu to dig a well in summer season. (2) The water table is deeper in the summers and so a well dug in summers will be very deep. (3) This deep well is to provide water supply not only in monsoon and winter but also in summer season. Thus, a deep well dug in summer will provide water supply for longer time.

Q. 14. Think about it. (Textbook page 39)

- **Which agent has the most kinetic energy of all – wind, river or glacier?**

Ans. Wind has the most kinetic energy.

ACTIVITIES

*(1) Go to a river bank or a sea coast and observe the erosional, depositional and transportational work done by them.

*(2) Make a collage of pictures of landforms by collecting them from magazines and newspapers.

(3) Try to understand the formation of landforms like gorges, V-shaped valleys, waterfalls, alluvial fans, meanders, flood levees, flood plains and deltas with the help of teachers.

(4) Try to understand the various landforms produced by the work of glaciers with the help of your teachers.

(5) Try to understand the various landforms produced by the work of winds with the help of your teachers.

(6) Try to understand the various landforms produced by the work of sea waves with the help of teachers.

(7) Try to understand the various landforms produced by the work of groundwater with the help of teachers.

(8) **Give it a try. (Textbook page 36)**

With the help of internet, obtain information regarding the places along Konkan coast where you will find the landforms formed by sea waves.

(9) Write the names of the landforms with which the diagrams given on page 35 of the textbook are associated. Colour the eroded and the remaining part, if any, in the given diagrams.

(10) Observe the picture given on page 37 of the textbook carefully. Identify the landforms made by waves and write their names in the picture given in the textbook.

(11) Observe the picture given below carefully. Identify the landforms formed by different agents of erosion. Number them with pencil as shown below and write their names in the sequence.

Landforms	Agent of erosion	Landforms	Agent of erosion
(1) 'U' shaped valley	Glacier	(5) Lagoon	.....
(2) Lateral moraines	.....	(6) Beach	.....
(3) Horn	.....	(7) Sea arch	.....
(4) Cirques	.....		

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

5 PRECIPITATION

Points to be studied

- Water bodies and Forms of Condensation on the Earth
- Precipitation
- Snow
- Hail
- Rain
- Convectional Rainfall
- Orographic Rainfall
- Cyclonic Rainfall
- Distribution of Rainfall in the World
- Fog, Dew and Frost
- Effects of Precipitation
- Acid Rain

SUMMARY

5.1 Water Bodies and Forms of Condensation on the Earth :

(1) 70.8% surface of the earth is full of water. The distribution of water is very uneven. At some places, the water storage is limited while it is ample at other places.

(2) Changes in moisture and in atmosphere conditions result in various forms of condensation on the earth.

(3) Snow, rain, hails, fog, dew and frost are some of the important forms of precipitation.

5.2 Precipitation :

(1) Water falling either in solid state or in liquid state from the clouds to the ground is called precipitation.

(2) Snowfall, rainfall, hailstorm, fog, dew and frost are the various forms of precipitation.

5.3 Snow :

(1) **Sublimation :** The process of gaseous water i.e. water vapour directly transforming into solid snow is called as sublimation.

(2) When the temperature falls below freezing point, water vapour directly turns into snowflakes through the process of sublimation.

(3) Such precipitation of solid water in form of snow particles is known as snowfall.

5.4 Characteristics of snow and snowfall :

(1) Snow–It is in solid form and accumulates in form of layers.

(2) Snow–It is friable and opaque.

(3) Snow–When melts, it is the source of water for the region.

(4) Snowfall – At high latitude and temperate region, snowfall occurs even at mean sea level. In tropical region – snowfall occurs in the high altitude region above snowline.

(5) People living in snowfall regions have to protect themselves from the frostbite.

(6) Heavy snowfall causes inconvenience to the people and disturbs the transport and communication systems.

Know this :

(1) Snow and ice differ in many respects.

(2) Snow is friable and opaque.

(3) Snow accumulates in form of layers on top of each other. Due to pressure from the upper layers, lower layer of the snow becomes homogeneous, massive and transparent ice.

(4) In some regions, when the temperature drops below freezing point, the surface layer of the reservoir / lake gets frozen and forms a layer of thin ice on it. This (ice) is not related to snowfall directly.

5.5 Hail :

(1) Very high temperature → upward movement of this hot air → temperature drops with greater height → condensation of the moisture → water vapour → upward movement of air → these water droplets move to higher altitude → temperature drops further → solidification of these droplets → hails are formed.

(2) **Concentric Layers :** When the hailstones are formed, they move up and down continuously because of upward movement of air currents. As they go to higher altitude, a new layer of ice gets deposited around it. It happens repeatedly and such layers of ice in hail are called Concentric Layers.

(3) These big heavy hailstones fall rapidly to the ground due to gravity and such precipitation of hails is called hail showers or hail-storms. Crops gets destroyed and loss of life and property also occur due to hail-storms.

(4) The phenomenon of hail-storms is not seen in equatorial region as the temperature is very hot there.

(5) The phenomenon of hail-storms is also not seen in cold latitudes as there are no vertical movement of air current.

(6) During the hot summer, hail-storms are normally seen in the region of South-east Asia, India and Africa.

5.6 Rain :

Three Types of rain

(1) Convectional rain

(2) Orographic rain

(3) Cyclonic rain

5.7 Convectional rain :

(1) Equatorial region → perpendicular sun rays throughout the year → very high temperature → land surface gets heated very fast → evaporation → air near surface also gets heated → air becomes light → resulted into convectional, upward movement of air → temperature gradually falls with height → condensation → formation of water droplet → water droplet falls on ground as rain. Such rainfall is known as convectional rainfall.

(2) In the equatorial region, the land gets heated very fast by the afternoon and convectional process begins. This results into heavy rainfall every day in the afternoon or evening.

(3) As compared to land surface, such convectional movement of air does not take place on sea surface as water gets heated very slow and therefore convectional rain does not fall on the sea areas of equatorial region.

(4) **Characteristics of convectional rainfall :**

(i) This type of rainfall occurs every day afternoon in equatorial region.

(ii) Such rain is characterized with thunders and lightning.

(iii) Amazon Valley in South America and Congo Valley in Africa are the famous regions of convectional rainfall.

(iv) The extent of convectional rainfall is limited and it is predominantly a local phenomenon.

(v) Certainty of convectional rainfall is very high.

5.8 Orographic rainfall :

(1) When the phenomenon of rainfall occurs due to obstruction of the mountains, it is called as orographic rainfall.

(2) Moist air coming from the lakes or the seas → obstructed by the high mountain ranges → such winds starts moving upward along the slope of mountain → the temperature of such winds drops with the height → condensation takes place → formation of water droplets → rainfall. Such rainfall is known as orographic rainfall.

(3) **Characteristics of orographic rainfall :**

(i) This type of rainfall takes place due to the obstruction of mountains.

(ii) Windward side of the mountain receives more rainfall than the leeward side, resulting into formation of a 'Rain Shadow region'.

(iii) Rain received in India due to monsoon winds is predominantly an example of orographic rainfall.

(iv) Certainty of orographic rain is very less. This rain is also irregular, resulting into either floods or droughts due to excess or scanty rain spells.

(v) Orographic rainfall is more common throughout the world.

(vi) **Rain Shadow region :** Moist air approaching from water bodies towards land gives more rainfall on the windward side of mountain. After crossing the mountain-top, when such winds go to the other side of the mountain, winds are dry

and their moisture holding capacity also increases. The leeward side of the mountain thus, gets less rainfall and such area is called a rain shadow region.

5.9 Cyclonic rain :

(1) Centre of extremely low air pressure → air from the high pressure from all directions moves in to this low pressure centre → winds move in circular motion → a unique state of air sets in as cyclone.

(2) Circular motion of air → gives a momentum to the cyclone → air starts moving upwards → temperature of the air reduces → condensation takes place → formation of water droplets → rain. When such water droplets fall on the ground in form of rain, it is called as cyclonic rain.

(3) **Characteristics of Cyclonic rain :**

(i) Cyclonic rain is common in temperate region and the area of temperate cyclones is also very extensive.

(ii) The extent of tropical cyclones is limited and it is also stormy in nature.

(iii) Certainty of cyclonic rain is very less and may cause heavy rains.

5.10 Distribution of rainfall in the world :

(1) Distribution of rainfall in the world is uneven.

(2) Equatorial region, monsoon region of south-east Asia and north-east Europe receive more rainfall.

(3) Polar region, deserts and interiors of large continents receive less rainfall.

(4) Area adjacent to heavy rainfall regions and coastal regions receive moderate rainfall.

(5) Continental area of Indian subcontinent receive less rainfall.

(6) Eastern Africa has a hilly region and due to cool climate, the process of convectional rain does not occur in this region despite being located close to equator. Therefore, this region too, receives less rain.

(7) Rainfall gradually declines towards east of Europe as this region is away from Atlantic ocean and hence moist air cannot reach up to this region.

(8) Australia is located in Southern hemisphere and the coastline of eastern Australia comes under the influence of trade winds. Hence, eastern coast of Australia receives more rainfall.

(9) **Factors affecting rainfall are as follows :**

(i) Proportion of moisture

(ii) Air pressure

(iii) Temperature

(iv) Relief

(v) Latitudinal location

5.11 Rain gauge :

The instrument used to measure the rain is known as rain gauge. It has a funnel, a bottle and a measuring jar. Rain Gauge must be kept in open air on a platform of 30 centimetres in height. The amount of rain is measured every 3 hours in the region of heavy rainfall.

Know this :

(1) 1 mm rainfall means, if we do not let the rain water to percolate, run off or even evaporate and if this water is spread on the flat surface uniformly, the height of this rain water is 1 mm.

(2) If the water of 1 millimetre rainfall on 1 square kilometre area is collected, it will give us 10,00,000 litres of water.

(3) Rain gauge is also used to measure snowfall. 120 millimetres of snow is considered equal to 10 millimetres of rainfall.

5.12 Fog, Dew and Frost :

(1) When the condensation or solidification of water vapour in the atmosphere takes place near the surface, then one can see condensation in the form of fog, dew and frost.

(2) **Fog :** Due to less temperature near the surface, water vapour condenses into microscopic water particles and float in the air. Such microscopic water particles near the surface with very high density is called fog.

(3) **Dew :** When moist air near the earth's surface comes in contact with a very cold object, condensation of water vapour takes place and turns into very small water droplets. These water droplets stick to such cold surface. This form of precipitation is called dew.

(4) **Frost :** If the temperature of the air is less than zero degree, water droplets stuck to the surface of cold objects freeze. Such frozen water droplets is called frost.

(5) Dew and Frost occur on a large scale in winters.

5.13 Effects of precipitation :

(1) Precipitation is the important source of potable water across the globe.

(2) Excess precipitation may lead to floods, causing loss of life and property.

(3) Less precipitation leads to drought.

(4) Excess or less precipitation may lead to the shortage of food supplies and food may have to be imported. Farmers' condition becomes grave and country's economy gets affected.

(5) Indian economy is an agrarian economy and depends heavily on precipitation. The precipitation in India is quite erratic.

(6) Very dense fog reduces the visibility and affects the transportation like roads, railways, waterways and airways.

(7) Frost is harmful to the crop and if spread on the roads, causes accidents.

(8) Fog and dew damages some crops by spreading diseases, while it may be beneficial to some other crops.

5.14 Acid rain :

(1) Precipitation of water with dissolved acids is called acid rain.

(2) Various gases from polluted air gets mixed in water vapour and reacts chemically to form nitric acid, sulphuric acid, etc.

(3) Acid rain is very harmful to living organisms as well as non-living objects.

(4) **Effects of acid rain :**

(i) Acid rain causes water pollution.

(ii) Aquatic life like fish and other living organisms in the water die due to acid rain.

(iii) Acidic rain causes leaves to dry and thus trees die. Birds and animals also suffer due to acid rain.

(iv) Micro-organisms in soil gets affected due to acid rain. Such soil becomes acidic and becomes infertile.

(v) Non-living objects like buildings, structures, bridges and even statues gets defaced, corroded and deteriorated due to acid rain.

QUESTIONS AND ANSWERS

Q. 1 Match the columns : *(1 Mark each)*

'A'	'B'
(1) Orographic rain	(a) Temperate region
(2) Convectional rain	(b) Pollution
(3) Cyclonic rain	(c) Polar region
(4) Acid rain	(d) Equatorial region
	(e) Monsoon rain in India
	(f) Hails

Ans. (1) Orographic rain – Monsoon rain in India
(2) Convectional rain – Equatorial region
(3) Cyclonic rain – Temperate region
(4) Acid rain – Pollution.

Q. 2 Identify the precipitation type with the help of description given below : *(1 Mark each)*

***(1) It is the main source of water that you use sometimes. It is torrential and sometimes continuous. Most of the agriculture in India is dependent on it.**

Ans. Rain

***(2) It seems as if water droplets are floating in the atmosphere in London. One cannot see the sun till the afternoon during winters because of this phenomenon.**

Ans. Fog

***(3) It never precipitates like this in equatorial areas. Precipitation in the solid form sometimes causes damage to the crops.**

Ans. Hail-storms / Hail shower

***(4) A white cotton like layer spreads on the earth's surface because of this form of precipitation in the state of Jammu and Kashmir. Has to change its capital in winters. In Maharashtra, it does not precipitate like this.**

Ans. Snowfall

(5) Visibility reduces because of this during winters. It affects transportation. There is also a possibility of accidents.

Ans. Dew

(6) In winters, visibility reduces, affects transportation. Prone to accidents.

Ans. Fog

Q. 3 Identify the odd man out : ***(1 Mark each)***

*(1) Orographic rainfall, acid rain, cyclonic rainfall, convectional rainfall.

*(2) Snowfall, rainfall, hailstones, dew.

*(3) Thermometer, rain gauge, anemometer, measuring jar.

(4) Fog, Hail, Dew, Frost.

Ans.

(1) Acid rain (2) Dew

(3) Measuring jar (4) Hail.

Q. 4 Answer the following questions in one sentence : ***(1 Mark each)***

(1) What factors cause various forms of precipitation on the earth?

Ans. Change in moisture and in atmospheric conditions cause various forms of precipitation on the earth.

(2) Name the forms of precipitation.

Ans. Snow, rain, hails, fog, dew and frost are some of the important forms of precipitation.

(3) What do you mean by 1 mm rain?

Ans. 1 mm rain means, if we do not let the rain water to percolate, run off or even evaporate and if this water is spread on the flat surface uniformly, the height of this rain water is 1 mm.

(4) How much water one may get if 3 mm rain falls in 1 sq. km area?

Ans. If water of 3 mm rainfall in 1 sq. km area is collected, it will give us 30,00,000 litres of water.

(5) Which forms of precipitation are seen near the surface of the earth?

Ans. If condensation process takes place near the surface of the earth, precipitation in form of dew, frost and fog take place.

***(6) If condensation occurs closer to the Earth's surface what types of forms become visible?**

Ans. When the condensation or solidification of water vapour in the atmosphere takes place near the surface, then condensation in form of fog, dew and frost becomes visible.

(7) What factors affect the amount of rainfall in a region?

Ans. Factors affecting rainfall are as follows :

(1) Proportion of moisture (2) Air pressure (3) Temperature (4) Relief (5) Latitudinal location.

(8) Which forms of condensation seen in high altitude of atmosphere?

Ans. Rain, snow and hails are the three forms of condensation seen in the high altitude of atmosphere.

***(9) In what way does precipitation occur on the earth?**

Ans. Water falling either in solid state or in liquid state from the clouds to the ground it is called precipitation.

***(10) Comment on the rainfall occurring in the rain shadow area?**

Ans. Rain shadow area gets very less rainfall. In fact, that is the reason the very region is called rain shadow region.

(11) What is acid rain?

Ans. Various gases from polluted air get mixed in water vapour and react chemically to form nitric acid, sulphuric acid, etc. Precipitation of water with such dissolve acids is called acid rain.

(12) How do the water (rain) droplets form?

Ans. The moist air, either due to upward movement of air as the process of convection, or due to obstruction by mountains rises upward. The process of condensation takes place due to less temperature and water vapour is transformed into tiny water droplets. Such water droplets falling on the ground is called rain.

(13) Why does the amount of high rainfall in the western part of the European continent reduce in the eastern part?

Ans. Eastern part of Europe is located on the eastern side of hilly region. Besides, this area is quite away from the Atlantic Ocean and hence moist winds do not reach up to eastern part of Europe. As

a result, rainfall gradually decreases towards the eastern side of Europe.

(14) What problems one can face due to fog, dew and frost?

Ans. Very dense fog reduces the visibility and affects the transportation like roads, railways, waterways and airways. Frost is harmful to the crop and if spread on the roads, causes accidents. Fog and dew damages some crops by spreading diseases, while it may be beneficial to some other crops.

(15) What causes acid rain?

Ans. Pollution is the main cause of acid rain. Various gases from polluted air gets mixed in water vapour and react chemically to form nitric acid, sulphuric acid, etc. Precipitation of water with such dissolve acids causes acid rain.

Q. 5 Distinguish between the following: *(2 Marks each)*

***(1) Dew and Frost.**

Dew	Frost
1. Dew is formed due to condensation near the surface of the earth.	1. If the temperature of the air near the surface falls below freezing point, the frost is formed.
2. When air close to surface of the earth comes in contact with very cold object, small water droplets stick to cold object is called dew.	2. When the temperature of air is less than 0°C, water vapour turns into frozen water droplets due to sublimation process and then a frost is formed.
3. So, dew is formed due to condensation process.	3. So, the frost is formed due to sublimation process.

(Note : Any two points are expected in answer.)

***(2) Snow and Hail :**

Snow	Hail
1. Sublimation process leads to snow formation.	1. Hails are formed due to concentric layer cause due to vertical, upward movement of air.
2. Snow is normally found in winters.	2. Hails are normally found in summers.
3. When water vapour comes in contact with very cold air, snowflakes are formed.	3. Very high temperature and upward movement of air leads to solidification of water droplets and hails are formed.
4. Snow particles are isolated.	4. Solidification of ice is a hailstones and it has concentric layers.
5. Precipitation in form of solid particles of snow is known as snowfall.	5. Hailstorms or hail showers occur when big heavy hailstones fall rapidly due to gravity.
6. Snow is non transparent, friable and opaque.	6. Hails are hard and big.

(Note : Any two points are expected in answer.)

Q. 6 Write short notes : *(2 Marks each)*

(1) Convectional rain :

Ans. (1) Due to very high temperature, the evaporation accelerates. Air becomes moist and light and moves upward in the atmosphere. At higher altitudes, the moisture holding capacity of the air decreases and this leads to condensation and rain falls. This type of rain is known as convectional rain. (2) Equatorial region receives convectional rain every afternoon. The rain is associated with thunder and lightning. (3) Amazon valley in South America and Congo valley in Africa are known for this type of rain. (4) This rain is predominantly local and its extent is very small. However, the certainty of this rain is very high.

(2) Orographic rain :

Ans. (1) Moist air approaching from lake / sea / water body gets obstructed by high mountains. Such winds then move upwards along the slope of mountain. At higher altitude the condensation process takes place and windward side and mountain top receives abundant rain. This type of rain is

known as orographic rain. (2) Obstruction of mountain causes orographic rain. The windward side of mountain receives more rainfall than the leeward side. The leeward side of mountain gets less rainfall and results in the formation of rain shadow region. (3) Rainfall that India receive from monsoon winds is predominantly of orographic in nature. (4) Certainty of orographic rain is less and erratic. This causes the spells of excess or less rainfall resulting in floods and droughts. Among all types of rainfall, orographic rain is common throughout the world.

(3) Cyclonic rain :

Ans. (1) Cyclone is formed when the air from high pressure areas moves in circular motion towards the centre of very low air pressure. As the air in circular motion moves upward very rapidly, at high altitude condensation process takes place followed by rain. Such rain is known as cyclonic rain. The region that comes under the path of cyclone receives heavy rain. (2) Temperate region has more cyclone. Cyclonic rain and its extent is also very large. (3) Tropical cyclones are smaller in extent but they are associated with thunder and lightning. (4) Certainty of cyclonic rain is less. Cyclones cause floods and loss of life and property.

(4) Rainshadow region of Maharashtra.

Ans. (1) Moist air coming from Arabian Sea located to the west of Maharashtra gets obstructed to Sahyadri range. Once obstructed, these winds move upward at greater altitude, the condensation process takes place near Sahyadri peaks. (2) As a result, Konkan and the western side of Sahyadri i.e. windward side gets abundant rain. When these winds cross over Sahyadri and move towards its eastern side, i.e. towards Maharashtra plateau, these winds are dry and also have more moisture holding capacity.

Q. 7 Give geographical reasons : *(3 Marks each)*

(1) Water on the blades of grass seen on winter mornings.

Ans. (1) Water droplets on the blades of grass appear due to water vapour in the air. (2) When the temperature falls during night or in early hours in winters, the tree leaves or grass blades also get chilled. (3) Moist air near the earth surface comes in contact with these cold objects like grass and water vapour turns into small water droplets on these leaves. Hence, water on the blades of grass seen on winter mornings.

(2) Maharashtra does not get snowfall.

Ans. (1) To get water vapour transform into snowflakes, temperature must fall below freezing point. (2) Only then gaseous water from the air gets transformed into solid snow through sublimation process. (3) Maharashtra during winters, has less temperature but it never falls below freezing point. Hence snow particles or snowflakes are never found in the atmosphere of Maharashtra. Hence Maharashtra never experiences snowfall.

(3) Water or rain droplets are formed in the higher altitude of atmosphere.

Ans. (1) Due to upward vertical movement or due to obstruction of mountain, moist and light air moves upward. (2) Less temperature at the higher altitude causes the condensation process. (3) This leads to formation of water droplets and fall on the ground as rain.

(4) Like London, we don't see fog till the afternoon in the winters.

Ans. (1) London is located in temperate belt and has a larger duration of winters. (2) Temperature remains low even in the afternoon and therefore, in London, fog is seen even in late afternoon. (3) In our conditions, we do experience fog in early hours of winters but as the day progresses, temperature rises and increasing temperature near the surface of land again converts fog into water vapour through evaporation process. Most of the fog does become thin and disappears before noon. Hence, we do not experience fog till late afternoon like London.

(5) Hail-stones do not occur frequently.

Ans. (1) Strong vertical movement of air with very high difference in temperature is an ideal prerequisite for the formation of hailstones. (2) Air also needs to be moist. (3) Such extreme conditions do not exist frequently. Hence we don't experience hailstones frequently.

(6) The eastern coast of Australia receives more rainfall.

Ans. (1) Australia lies in southern hemisphere and its eastern coast comes under the influence of trade winds. (2) As these winds cause the rain on the western margins of landmasses in northern hemisphere, same way these winds cause the rain in eastern margins of landmasses, like Australia, in South hemisphere.

(7) Equatorial region does not see convectional rain on sea in the afternoon. **OR**

Equatorial land area receives convectional rainfall in the afternoon.

Ans. (1) In the equatorial region, the land gets heated very fast by the afternoon and convectional process begins. This results into heavy rainfall every day in the afternoon or evening. (2) In compare to land surface, such convectional movement of air does not takes place on sea surface as water gets heated very slow and therefore convectional rain does not fall on the sea areas of equatorial region.

Q. 8 Explain the following : *(4 Marks each)*

***(1) Which type of rainfall occurs in most of the world? Why?**

Ans. (1) Orographic rain is very common in most of the world. (2) About 70% surface of the earth is covered with water bodies and hence the proportion of moist air moving from water bodies to land is common. (3) Mountain ranges and hills are common relief features on the land and winds carrying such moist air get obstructed to these landforms. (4) Winds then start moving along the slope of mountain, which further leads to condensation and rainfall.

***(2) What precautions should be taken while measuring rainfall?**

Ans. Following precautions should be taken while measuring rainfall:

(1) Rain gauge must be kept in open air.

(2) It is kept on a platform of 30 cm in height.

(3) Nothing shall obstruct the accumulation of rainwater in the rain gauge.

(4) In a region of very heavy rainfall, amount of rainfall must be measured every 3 hours.

(3) Bring out various characteristics snowfall.

Ans. The process of sublimation causes formation of snow and precipitation of sno known as snow fall. Salient characteristic snowfall are as follows :

(1) At high latitude and temperate re snowfall occurs even at the mean sea level whi tropical region, snowfall occurs in the high alti region above snowline.

(2) Snow is in solid form and accumulate form of layers.

(3) Heavy snowfall causes inconvenience to people and disturbs the transport and communica systems.

(4) Snow is friable and opaque. When snow m it becomes the source of water for the region. Pe living in snowfall regions have to protect themse from the frostbite.

(4) What will you use to protect your from severe hailstorms?

Ans. In order to protect from the hail-storm hail showers,

(1) One must take a shelter of some solid struc like house, building or big tree.

(2) While at home, don't face window so that will not get hurt because of breaking glass du hail.

(3) If you fail to get any good shelter, sit on knees close to the ground and protect your hea bending forward and take head near to your thi Protect your head and eyes with folding hand elbows.

(4) If possible, use blanket, grass or baske cover yourself while sitting in this position.

(5) How is rain shadow region formed?

Ans. (1) Moist air approaching from water bo towards land gives more rainfall on the windw side of the mountain. (2) When such winds crossing the mountain-top, go to the other side th winds are dry and their moisture holding capa also increases. The leeward side of the mount thus, gets less rainfall and such area is called a r shadow region.

(6) Which regions experiences more rainfall? OR **Why are the areas of high rainfall situated in tropical region?**

Ans. (1) Tropical region receives more rainfall than any other region in the world. Tropical region receives maximum solar heat. (2) It receives always perpendicular sunrays throughout the year. Temperature here is always high and so the evaporation. (3) Moist, hot air becomes light and moves upward due to less temperature at higher altitude, the condensation process takes place and rain falls. (4) Besides, there is a strong upward movement of air due to very high temperature. Therefore, tropical region receives more rainfall than any other region in the world.

(7) What is the reason for low rainfall in the central peninsular India?

Ans. (1) India receives rain from incoming monsoon winds from west & southwest. These winds, once reach India, get obstructed by Sahyadri range, which is running parallel to the western coast of India. As a result, these winds climb up along the slope of Sahyadri and give abundant rain to the windward side of this mountain. (2) When they cross Sahyadri and reach to the eastern side of it, they become dry. (3) Eastern branch of monsoon winds enter from the eastern coast and gets obstructed to eastern coastal hills as well as Garo Khasi hills of North East States. These winds later move towards Punjab due to the obstruction of Himalaya. Besides, cyclones forming in the Bay of Bengal also affect the overall movement of both branches of monsoon winds. (4) Hence, the rain gradually reduces as one moves from coastal region to interior of India. Interior of peninsular India or the continental Indian peninsular is quite far from both the coasts of India and hence receive less rainfall.

(8) Why does the eastern part of Central African continent get less rainfall than the Western part, despite its location close to equator?

Ans. (1) Eastern part of Central African continent is hilly and hence has less temperature despite being located close to equator. (2) Due to this, the convection process does not take place here at all as the difference in temperature remains minimal. Therefore, eastern part of Central African continent does receive less rainfall than the western part, despite being both located along the equator.

(9) What are positive and negative impacts of excess or less precipitation?

Ans. (1) Both excess and less precipitation are destructive in nature. (2) Excess rain leads to floods resulting into loss of life and property. (3) Less precipitation leads to drought. Both excess and less precipitation leads to short fall of food supplies and farmers' conditions become grave. (4) Food shortage forces us to import the foodgrains and ultimately country's economy gets affected.

(10) What are the characteristics of rainfall in India?

Ans. (1) The rainfall in India is predominantly orographic. (2) Indian economy is an agrarian economy and hence dependent on rainfall or precipitation. (3) A good rain at right time increases crop production while untimely and unseasonal rain damages the crop. (4) Rainfall in India is quite erratic.

Q. 9 Answer the following in detail :

(1) Describe in detail the distribution of rainfall in the world.

Ans. Global distribution of rainfall is uneven. In general, tropical region receives more rainfall. However, local factors like coastal location and the regions under trade winds receive more rainfall. Regions with high, moderate and less rainfall are as follows :

1. **Regions of high rainfall :** Equatorial region, monsoon region of Southeast Asia, North Western Europe, Eastern Australia and East and West Coast of America receive high rainfall.

2. **Regions of moderate rainfall :** Areas adjacent to high rainfall and coastal regions of the world receive moderate rainfall.

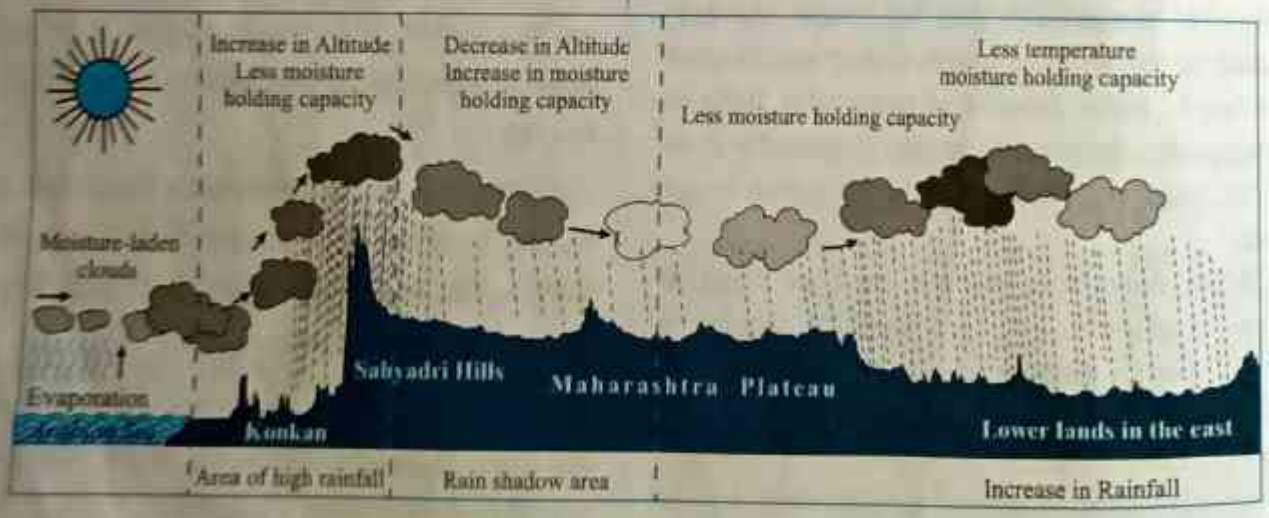
3. **Regions of less rainfall :** Polar zones, deserts and all interiors of continents receive less rainfall.

(**Note** : Map is not needed in answer)

Besides these areas, regional variations due to specific reasons are also prominent in rainfall distribution of the world. For example, Central part of Indian peninsula receives less rainfall as it is far from both the coastlines. Eastern part of Central Africa is hilly and hence does not get convectional rain despite being located along equator. Eastern Europe lies to the east of mountainous region, besides it is very far from the Atlantic Ocean. Hence Eastern Europe gets less rainfall as moist air cannot reach this far. Eastern Coast of Australia receives more rain as it comes under the influence of trade winds.

(2) With suitable diagram, explain the formation of rainshadow region.

Ans. Moist air approaching from water bodies towards land gives more rainfall on the windward side of mountain. When such winds, by crossing the mountain-top, go to the other side of the mountain, these winds are dry and their moisture holding capacity also increases. The leeward side of the mountain thus, gets less rainfall and such area is called a rainshadow region.



(3) Explain various effects of precipitation.

Ans. Water falling either in solid state or in liquid state from the clouds to the ground it is called precipitation. Snowfall, rainfall, hailstorm, fog, dew and frost are the various forms of precipitation. Precipitation on the earth is not uniform everywhere. Positive and negative effects of precipitation are as follows :

(1) Precipitation is the only source of water for the entire earth. (2) Excess or less precipitation is disastrous. (3) Excess precipitation leads to floods and loss of life and property. (4) Less precipitation causes drought and further shortage of food. Farmers' condition becomes grave and the nation may have to import food grains, which ultimately affects the economy of the country. (5) Indian economy is agrarian and hence thoroughly depends on precipitation (i.e. rain). (6) A good rainfall at the right time increases crop production while unseasonal and untimely rainfall causes damage to crops. (7) The rainfall in India is quite erratic. (8) The visibility reduces due to dense fog and affects transportation. Accidents may also take place in such conditions. (9) Dew and frost damage some crops and spread diseases. (10) Frost destroys crops and also causes accidents if sprayed on roads. (11) For some crops however, dew is beneficial.

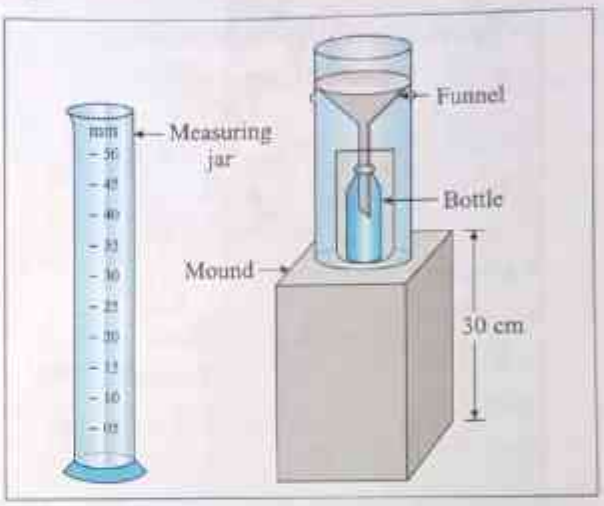
***(4) Bring out the ill effects of acid rain.**

Ans. Ill effects of acid rain are as follows :

(1) Acid rain causes pollution of water bodies like rivers, lakes and reservoirs. (2) Fish and other aquatic life in such polluted water bodies die due to acidic rain. (3) Acid rain in forest causes burning and shedding of leaves. At times, trees also die. (4) Animals and birds also suffer due to acid rains. (5) Acid rain also affects soil. Micro-organisms which are very crucial for soil's health die due to acid rain and thus soil becomes acidic and infertile (6) Acid rain also causes damage to structures, building, bridges and statues. Acid rain reacts, corrodes and defaces the surface of such things.

(5) With suitable diagram, write briefly on the rain gauge.

Ans. (1) The instrument used to measure the rain is known as rain gauge. It has a funnel, a bottle and a measuring jar. Rain gauge must be kept in open air on a platform of 30 centimetres in height.



(2) The amount of rain is measured every 3 hours in the region of heavy rainfall. Rain gauge is also used to measure snowfall. 120 millimetres of snow is considered equal to 10 millimetre of rainfall.

Q. 10 Mark and name the following on the outline map of the world with suitable signs and symbols. Index is must. *(1 Mark each)*

1. Regions of less rainfall in Central India.
2. High rainfall region on eastern coast of Australia.
3. Region of convectional rain in South America.
4. A city from Europe experiencing fog till late afternoon.
5. An Indian state experiencing snowfall.

Q. 11 Observe the given diagrams and answer the following questions in brief : *(1 Mark each)*

(1) Look at the following pictures and identify the correct rainfall type. Also mention the area of such type of rainfall.

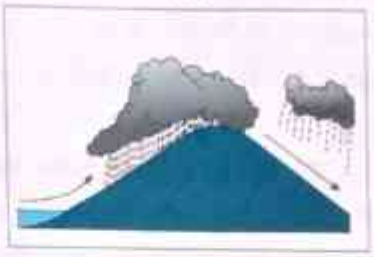
Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

(A)

Ans. Convectional rainfall

Region : Equatorial regions receives convectional rainfall. Amazon valley in South America and Congo valley in Africa are the famous regions of convectional rainfall.

(B)



Orographic rainfall

Region : Moist air approaching from water bodies towards land is obstructed to mountain and gives more rainfall on the windward side and top of the mountain. India receives rain from monsoon winds which is mainly orographic in nature.

(C)

Cyclonic rain

Region : Temperate region predominately receives the cyclonic rain.

(2) Look the figure given in question number 7 and answer the following questions :

(1) In figure 'B', on which side of the mountain is it raining more?

Ans. The windward side of the mountain in figure 'B' receives more rainfall.

(2) Shade the Rain Shadow region in figure 'B' and name it.

Ans.

(3) What is the difference between figure 'A' and figure 'C'?

Ans. Figure 'A' is related to convectional rainfall and equatorial region receives such rain. Figure 'C' is related to cyclonic rainfall and temperate region receives such rain.

(4) Stormy winds and floods are associated with which type of rainfall?

Ans. Stormy winds and floods are associated with convectional rainfall.

(5) What type of rainfall occurs in Singapore?

Ans. Singapore is located much close to the equator. Hence the rainfall that occurs in Singapore is of convectional type of rain.

ACTIVITY BASED/OPEN ENDED QUESTIONS

(1) Observe the pictures given below and describe each in four to five sentences :

(1) Picture 1. (Textbook page 41)

Ans. Grass blades look like as in picture in the wee hours of winters. Water droplets on the grass appears like shining pearls and seen only in early morning. Morning walkers in forest or on the grass experience the good amount of water as their shoes and clothes near feet get wet.

(2) Picture 2. (Textbook page 41)

Ans. During winters, snow is seen everywhere in Kashmir. Snow falls on the trees, buildings, streets and houses. It appears that entire region is wrapped under the white blanket. Tourits visit Kashmir purposely during winters to enjoy snow and snowfall.

(3) Picture 3. (Textbook page 41)

Ans. We normally receive rain during June to September. Its monsoon rain in India and India receives maximum rain during this period. Hence, it is also referred as rainy season. This rain is abundant and extensively spread across India.

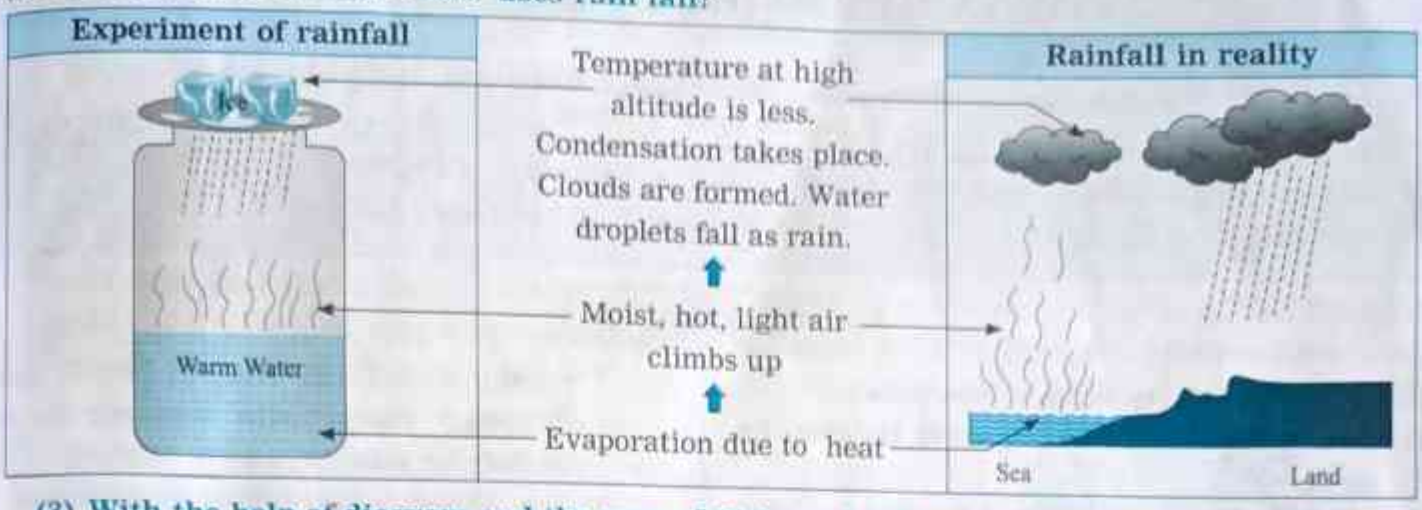
(4) Picture 4. (Textbook page 42)

Ans. London experiences fog till late afternoon during winters. Fog reduces visibility and hence the Parliament building, other buildings and London tower across Thames river are not clearly visible. It appears as if London is wrapped under clouds.

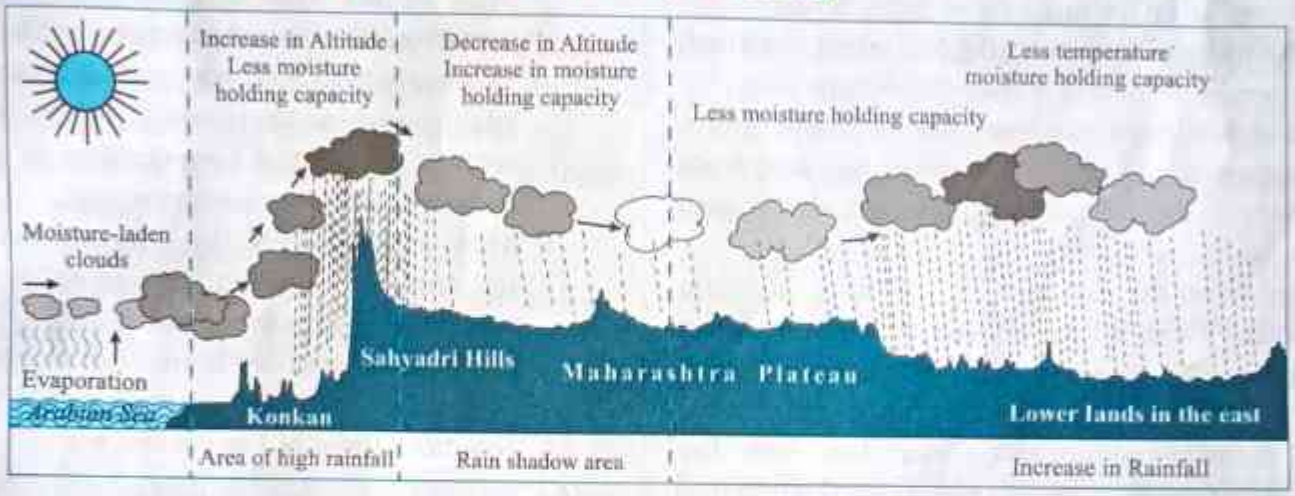
(5) Picture 5. (Textbook page 42)

Ans. Hail shower causes damage to crops. Hails damage houses, trees, vehicles, electric poles and cables. Hails are also dangerous to humans, animals and birds. Hailstorms can destroy standing crop and farmers suffer. Hails also destroy horticultural orchids like orange, grapes and plantains.

(2) Experiment of rainfall : How does rain fall?



(3) With the help of diagram and the map of Maharashtra, estimate the rain shadow region and the amount of rainfall your district actually receiving.



Ans. Write the answer of this question as per your district of stay.

ACTIVITY

* Using the rain gauge in your school, measure the rainfall continuously for one week occurring in your surroundings and make a bar graph using computer to show the amount of rainfall on the basis of data obtained.

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

6 THE PROPERTIES OF SEA WATER

Points to be studied

- General characteristics of sea water
- Temperature of sea water
- Salinity of sea water
- Density of sea water

SUMMARY

6.1 General characteristics of sea water :

(1) Pacific Ocean is the largest water body on the earth.

(2) Minerals from rocks and soil dissolve in water and get deposited in sea through rivers. This process is on for millions of years. Evaporation took away only water but salt content remained in oceans. This made seas and oceans salty.

(3) Land and water bodies vary in temperature. Surface of the land gets heated fast and cools down rapidly. Water gets heated slowly and cools down slowly.

(4) Temperature variation in heating up and cooling down of land is steep than that of water.

(5) That is why, near equator average temperature of land is above 45°C while average temperature of ocean is about 25°C. Near the poles the average temperature of land is –25°C while it is –2°C in case of water.

6.2 Temperature of sea water :

(1) Temperature of sea water at surface and at depth is studied separately.

(2) Surface temperature of sea water :

a. It is not uniform everywhere.

b. It changes with latitudes.

c. It decreases from equatorial areas towards the pole.

d. It is about 25°C near equator, about 16°C in mid latitude and 2°C near poles.

e. Location of the sea, ocean currents, cyclones, rainfall, sea waves, salinity, pollution, convectional moment of sea water, seasons, etc. factors influence the surface temperature of the sea.

(3) Temperature of seas as per the depth of water :

a. It decreases with increasing depth.

b. However, beyond a certain depth, temperature does not change much.

c. Temperature of the sea water changes rapidly with depth near equatorial areas. But such changes are moderate in mid latitude regions.

d. The difference in temperature with depth is lesser in polar region.

e. Most of the sun rays radiate back from surface of the sea and some of them penetrate to certain depth in water. The intensity of such sunrays decreases. Hence, after a certain depth, the temperature of the sea water remains same everywhere.

f. After 2000 m depth, the temperature of the sea water remains uniform at 4°C from the equatorial region to the polar areas.

g. Water at greater depth does not freeze.

h. The temperature of an open sea is always less than those of landlocked seas.

Explanation of important term :

- **Landlocked sea :** Seas that are totally surrounded by land are called landlocked sea. Landlocked seas are not connected to any ocean.

6.3 Salinity of the sea water :

Explanation of important term :

- **Salinity :** The amount of salt in the water is called salinity of water.

(1) Deposition of minerals and salts has made sea water salty.

(2) Factors like temperature, evaporation, supply of fresh water, landlocked or open nature of sea decide salinity of sea water.

(3) The buoyancy of sea water increases due to salinity. This is useful for water transportation as large and heavy ships easily float on such salty water.

(4) Salt is obtained from the salt pans.

(5) Salt is used in food as well as for making various chemicals and medicines.

(6) Besides, salt is also used to preserve food for longer periods. It is also used in ice factories.

(7) Distribution of salinity of sea water :

a. Equatorial region between 5°N and 5°S, on one hand, has cloudy sky for longer periods and receive conventional rainfall every day. Large rivers like Amazon and Congo also meet the sea in equatorial region and supply abundant freshwater. On the other hand, this region has higher temperature and more rate of evaporation. Therefore sea in these areas has a moderate to high salinity.

b. Tropical region in general has a higher temperature and higher rate of evaporation and therefore, sea in tropical areas has a moderate salinity.

c. Mid latitudinal zones between 25° and 35° in both the hemispheres has higher salinity.

d. Temperate regions have less salinity.

e. Landlocked seas have more salinity than open seas.

f. The Dead Sea has a salinity of 332‰.

g. Salinity of Arabian Sea is more than the Bay of Bengal.

6.4 Density of sea water :

(1) Temperature and salinity of sea water determine its density.

(2) Temperature and density are inversely proportionate, i.e. if temperature is less then the density of sea water is more.

(3) If salinity of the sea water is less then the density of sea water is also less.

(4) However, despite less salinity, the density is more if the temperature of the sea water is less.

(5) Effects of temperature and salinity on the density of the sea water is seen up to 500 m depth.

(6) However, at the 1000 m depth, factors like temperature, salinity and density of sea water do not change.

(7) The ocean currents are generated due to the difference in properties like temperature, salinity and density of sea water.

(8) The distribution of temperature gets control due to ocean currents.

(9) Regional climate of the earth also gets affected by the ocean currents.

QUESTIONS AND ANSWERS

Q. 1 Match the columns : *(1 Mark each)*

'A'	'B'
(1) Dead sea	(a) Density
(2) Preserving food	(b) Salinity 332 ‰
(3) Buoyancy	(c) Temperature controller
(4) Ocean currents	(d) Salts
	(e) Useful for water transportation
	(f) Bay of Bengal

Ans. (1) Dead sea – Salinity 332‰

(2) Preserving food – Salts

(3) Buoyancy – Useful for water transportation

(4) Ocean currents – Temperature controller.

***Q. 2 Tick the correct box according to the salinity of the ocean water ✓ :**

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

		Salinity		
		High	Medium	Low
(a)	Slanting sunrays, melting snow			✓
(b)	Cloudy sky rainfall throughout the year		✓	
(c)	Clear skies for the most part perpendicular sunrise	✓		
(d)	Less supply of fresh water desert area around	✓		
(e)	Low temperatures ample supply of river water			✓
(f)	Continental location desert around low temperature low rainfall	✓		

Q. Answer the following questions in one sentence : (1 Mark each)

(1) What is meant by Surface temperature of the sea water?

Ans. The temperature of the surface of the sea that is temperature of water at mean sea level in a cell is known as 'surface temperature of the sea water'.

(2) What is meant by Salinity of the sea water?

Ans. Weight of the salt in gms dissolved in 1000 gms of sea water or 1 kg of sea water is known as 'salinity of sea water'.

(3) What is meant by buoyancy?

Ans. The force of a liquid acting in a vertical direction which opposes sinking of a floating object is known as 'buoyancy'. With increasing density of the liquid, buoyant force increases.

(4) What is meant by dead sea?

Ans. No life can survive in the sea due to very high salinity hence it is called a 'dead sea'.

(5) What is meant by density of the sea water?

Ans. Mass of sea water increases due to dissolved salts in it is called 'density of sea water'.

(6) What is meant by ocean currents?

Ans. The movement of sea water along the surface due to variation in temperature, salinity and density is known as 'ocean currents'.

(7) At what depth does the temperature of the sea water remain stable?

Ans. Temperature of sea water remains stable at 4°C after 2000 m depth across the earth from equatorial region to polar areas.

(8) Why does the sea water taste salty?

Ans. Deposition of minerals and salts has made sea water salty.

(9) What is the salinity of Dead Sea?

OR

Which sea has the maximum salinity in the world?

Ans. The Dead Sea has a salinity of 332‰ which is maximum in the world.

(10) Which region has the uniform temperature of the sea at both surface as well as at the depth?

Ans. The polar region has the uniform 4°C temperature of the sea at both surface as well as at the depth.

(11) Which factors cause the ocean currents?

Ans. The ocean currents are generated due to the difference in properties like temperature, salinity and density of sea water.

(12) In which region is the salinity of sea water less?

Ans. Arctic Ocean and Bay of Bengal have less salinity of sea water which is about 32‰.

(13) Which instruments are used to measure the salinity of the sea water?

Ans. Instruments like hydrometer, refractometer and salinometer are used to measure the salinity of sea water.

***(14) What are the factors affecting the salinity of the sea water?**

Ans. Difference in temperature with latitude from equator to pole, different rate of evaporation, the supply of fresh water by the rivers and open or landlocked nature of the sea are various factors responsible for difference in salinity on a global level.

(15) What are the reasons of high salinity in the ocean?

Ans. Factors like higher rate of evaporation, less supply of fresh water and landlock nature of sea are responsible for high salinity in the ocean.

(16) What do you mean by 40‰ salinity?

Ans. 40‰ salinity means 40 gms of salt in 1 kg of sea water.

(17) What instruments are used to measure the salinity of the sea water?

Ans. Instruments like hydrometer, refractometer and salinometer are used to measure the salinity of sea water.

(18) Why is the sea water salty.

Ans. Minerals from rocks and soil dissolve in water and get deposited in sea through rivers. Evaporation took away only water but salt content remained in Oceans. This made seas and oceans salty.

(19) How is the salinity of the sea water measured?

Ans. The salinity of sea water is measured as salt in water in ratio of parts per thousand parts of water. The weight of salt in 1 kg of sea water is a salinity of the sea, which is expressed as ‰.

Q. 4 Write short notes : *(2 Marks)*

- **Dead Sea :**

Ans. The sea is located at the border of Israel and Jordan. This sea lies in mid latitude region and is surrounded by the deserts. Dry climate, high temperature and less rainfall are salient features of this sea. The rate of evaporation is also very high. All this has resulted in a very high salinity of sea which is 332‰. Saline pillars are developed due to very high salinity. Normally the salinity of any sea is about 35‰. Dead Sea salinity is 332‰, which is almost 10 times more than the average. As a result, the density and buoyancy of the sea is also very high. One can easily float in the sea. In such a high salinity, no life survives except some unicellular organism. The fish coming from the river Jordan also die as soon as they come here. Thus, this sea is named as the Dead Sea.

Q. 5 Give reasons : *(3 Marks each)*

***(1) Salinity is low in the landlocked Baltic Sea.**

Ans. Baltic Sea is located in temperate region and is a part of Northern Atlantic Ocean. Baltic Sea is a landlocked sea and hence ocean currents of Atlantic Ocean do not make change in its properties. Despite being a landlocked sea, less temperature, less evaporation and good supply of fresh water due to melting of ice caps resulted in less salinity of Baltic Sea.

(2) There is a higher salinity in the Northern Red Sea while lower in the southern.

Ans. Red Sea is an inlet part of an Indian Ocean which is located between the North East Africa and Arabian Peninsula. It is comparatively a narrow, elongated sea. The southern end of the sea is towards the Indian Ocean while the northern is as good as a landlocked sea. Salinity and temperature currents of Indian Ocean largely influence and control the salinity and temperature of southern end. Currents do not affect much on Northern side of the Red Sea. Besides, this part is surrounded by Sahara and Arabian Desert. High temperature and more evaporation have resulted in high salinity of the northern part of Red Sea.

***(3) Oceans located at the same latitude do not have same salinity.**

Ans. Salinity of the sea water is determined by the factors like temperature, supply of fresh water and landlocked or open nature of sea. Hence, the effect of latitudinal location is comparatively less significant factor on salinity of the sea. As a result the salinity of sea is not uniform even on the same latitude. E.g., the salinity of Indian Ocean and Atlantic Ocean is not same despite being on same latitude.

***(4) With increasing depth, the temperature of sea water decreases to a certain limit.**

Ans. Most of the sun rays radiate back from the surface of the sea, while some of them penetrate to certain depth in the water. As a result the intensity of sun rays decreases with increasing depth. Hence, with increasing depth, temperature of sea water decreases to certain limit.

***(5) There are more salt pans on the Western coast of India than its eastern coast.**

OR

Salinity of Arabian Sea is more than the Bay of Bengal.

Ans. Arabian Sea lie to the west of India. This sea is located in the tropical belt. Arabian Sea is exposed to clear sky and hence bright sun light. The temperature as well as the rate of evaporation of Arabian Sea is always high. Narmada and Tapi are the only two major rivers of India meet Arabian Sea, which is less as compared to fresh water supply that the Bay of Bengal receive. As a result, the salinity of Arabian Sea is as high as 36‰.

In comparison, even though the Bay of Bengal is also located in tropical belt, it is surrounded by land on three sides. Sky over the Bay of Bengal is cloudy for most of the days in the year. Cyclones developing in this area also have its effect. Besides, all major rivers of India and Bangladesh namely Ganga, Mahanadi, Godavari, Krishna, Cauveri and Meghana (i.e. Brahmaputra + Ganga + Padma) empty in Bay of Bengal and provide abundant supply of fresh water. As a result, the salinity of Bay of Bengal is less at 32‰, which is almost 4‰ less than Arabian Sea.

With higher temperature and salinity, conditions to develop salt pans along the Arabian Sea are more conducive. Hence, the western coast of India along Arabian Sea has more salt pans than the eastern coast of India along the Bay of Bengal.

(6) Salinity increases in the mid latitudinal zone.

Ans. Mid latitudinal belt between 25° and 35° latitude in both the hemispheres has less rainfall. The proportion of fresh water supply by rivers is also less in this region. This belt also has the major deserts of the world and hence the rate of evaporation is more in the adjacent region of these deserts. All these reasons together are responsible for increasing salinity of sea water in mid latitudinal region.

(7) Surface temperature of the sea is not uniform everywhere.

Ans. Surface temperature of the sea changes with latitudes. It gradually decreases from equator region towards polar areas. Besides, location of the sea, ocean currents, cyclones, rainfall, sea waves, salinity, pollution, convectional movement and seasons also affect the temperature. As a result, surface temperature of the sea is not uniform everywhere.

(8) Sea water near the sea bed never freezes.

Ans. The temperature of the sea water beyond 2000 m depth is seen uniformly at 4°C at any depth. This distinct quality or characteristics of water is known as anomalous expansion of water. Temperature of sea water at any depth can never fall below 4°C and hence, sea water even at seabed can never be frozen.

(9) There is a variation in the salinity of sea water.

Ans. Salinity differs from sea to sea. The temperature and the rate of evaporation is also different everywhere. Besides, the proportion of fresh water supply is also different. Hence, there is a variation in the salinity of sea water.

(10) Salinity of sea in temperate region decreases with higher latitude.

Ans. Temperate regions have moderate temperature and less evaporation. Besides, rainfall, snowfall and melting ice from polar region supply freshwater to sea in this region. Hence, salinity of sea in temperate region decreases with higher latitudes.

(11) The salinity of Mediterranean Sea is high.

Ans. Although Mediterranean Sea is a part of Atlantic Ocean, the sea is as good as landlocked by Africa and European continents. Mediterranean Sea is linked to Atlantic Ocean through a very narrow Gibraltar straight. However, currents from Atlantic Ocean make no difference to the salinity and temperature of Mediterranean Sea. Besides the dry climate and higher evaporation rate has caused the increasing salinity of Mediterranean Sea which is around 37‰ to 39‰. Eastern Mediterranean sea has more salinity than the western part.

(12) Dead Sea has the highest salinity.

Ans. Dead Sea which is located along the borders of Israel and Jordan has more evaporation rate. It is a landlocked sea and small Jordan river is the only source of fresh water. More evaporation, less rainfall, poor supply of fresh water and its landlocked nature of the sea together make the salinity of sea very high which is about 332‰.

Q. 6 Explain the following : *(4 Marks each)*

***(1) Explain the distribution of salinity around the Tropic of Cancer and Tropic of Capricorn.**

Ans. The salinity of sea around Tropic of Cancer is about 36 high temperature. High rate of evaporation and landlocked nature of the seas obstructing the free movement of ocean currents cause more salinity. In comparison, the salinity of sea around Tropic of Capricorn is about 35 around Tropic of Capricorn. The proportion of land is less in the Southern hemisphere. As a result, ocean currents control the salinity around Tropic of Capricorn.

***(2) What are the factors affecting the temperature of the sea water?**

Ans. Latitudinal location of the sea, ocean currents, cyclones, rainfall, sea waves, salinity of the sea water, pollution, convectional movement of sea water and seasons affect the surface temperature of the sea water. Radiating sun rays from the surface of the sea and less intense sunrays penetrating only up to a certain depth also decide the temperature of sea water at a depth.

***(3) Explain the changes occurring in the temperature of sea water according to the depth.**

Ans. Temperature of sea water with reference to depth is quite significant than that of surface temperature of the sea water. Temperature of the sea water decreases with increasing depth. However, this change in temperature is not uniform everywhere.

The temperature of the sea water changes rapidly with depth at equatorial areas. Near equator, the surface temperature of the sea water is about 18°C. It reduces to 12°C at 500 m depth. It is about 8°C at 1000 m depth, 5°C at 1500 m depth and 4°C at 2000 m depth. Thus, the variation in the sea in the temperature of the sea water near surface to 2000 m depth is 18°C and 4°C respectively. This variation is about 14°C and 4°C around mid-latitudinal region. Near polar areas, however, the variation between surface temperature and temperature at depth is nil. Sea water temperature in this region is uniformly seen at 4°C.

Most of the sun rays radiate back from surface of the sea and some of them penetrate to certain depth in water. The intensity of such sunrays decreases. Hence, after a certain depth, the temperature of the sea water remains same everywhere.

***(4) Name the factors affecting salinity.**

Ans. Factors like temperature, evaporation, supply of fresh water, landlocked or open nature of sea decide salinity of the sea water. More is the temperature of the sea water, more is the rate of evaporation, and hence salinity is also more. E.g., salinity of sea water around tropical region. In temperate region the temperature is less due to oblique sun rays and hence the rate of evaporation is also less, resulting in less salinity.

Fresh water supply either by rivers meeting sea like in Bay of Bengal, or melting ice caps like in Arctic Ocean result in lesser salinity.

Ocean currents get obstructed in landlocked seas and hence salinity of the sea remains high in compared to open oceans. Mixing of water takes place easily in open seas and hence salinity remains controlled by ocean currents.

(5) What is the use of the salt in the ocean to us?

Ans. Buoyancy of the water increases due to salts in Ocean, which helps water transportation. We obtain salt from the salt pans which is used in food. Salt is also used in making chemicals and various medicines. Salt is also used to preserve food and also in ice factory.

(6) How can we obtain the salt from the ocean water?

Ans. Sea water is trapped in salt pans in a specific way during the high tide. Evaporation process takes away water and salt is left behind which is collected later on.

(7) How much salt must be there in all the oceans together?

Ans. There is about 35 gms salt in 1 kg i.e. approximately 1 litre of sea water. Thus, we may get roughly 120 million tons (120×10^{11} kg) salt from the entire water of sea and oceans. If spread this salt evenly throughout the earth, it will form a 150 m thick layer of salt which will be equivalent to a 40 storey building.

(8) State the importance of the ocean currents.

Ans. The ocean currents are generated because of the difference in temperature, salinity and density. Ocean currents cause the surface movement of ocean water and act as a temperature controller. At global level, ocean currents also affect the regional climate through which they pass. Ocean currents does help maintaining balance in temperature and salinity of the sea water.

Q. 7 Answer the following questions in detail : ***(4 Marks each)***

(1) Explain how temperature is affecting the following :

(a) The density of sea water

(b) The salinity of sea water.

Ans. The density of sea water increases with increasing temperature. Thus, the density of cold sea water is more than the warm water. As a result, the density of sea water near the equatorial region is less than the density of sea water in polar areas. The temperature of sea water is uniform at certain depth and hence, the density is also same. Surface temperature of sea water decreases from the equator towards the pole and so the density increases towards the pole. This difference of density generates ocean currents.

The rate of evaporation increases with increasing temperature. This further results in more salinity. Sea water in tropical belt therefore has more salinity. In contrast, the temperate is less in polar area and so the evaporation rate. As a result, the salinity is also less.

Thus, as one moves from equatorial region to polar area, the temperature gradually decreases and so the salinity too.

(2) Briefly review the distribution of temperature of sea water.

Ans. Temperature of sea water at surface and at depth is studied separately. Surface temperature of sea water decreases from equatorial areas towards the pole. Near equator the temperature of the sea water is about 25°C, it is about 16°C in mid latitude and 2°C near poles. Location of the sea, ocean currents, cyclones, rainfall, sea waves, salinity, pollution, convectional moment of sea water, seasons, etc. factors influence the surface temperature of the sea.

Variation in the temperature of the sea water with depth is significant in compare to surface temperature. Temperature of seas decreases with increasing depth. However, the rate of declining temperature with increasing depth is not uniform everywhere.

Temperature of the sea water changes rapidly with depth near equatorial areas. Near equator, the surface temperature of the sea water is about 18°C. It reduces to 12°C at 500 m depth. It is about 8°C at 1000 m depth, 5°C at 1500 m depth and 4°C at 2000 m depth. Thus, the variation in the sea in the temperature of sea water near surface to 2000 m depth is 18°C and 4°C respectively. This variation is about 14°C and 4°C around midlatitudinal region. Near polar areas, however, the variation between surface temperature and temperature at depth is nil. Sea water temperature in this region is uniformly seen at 4°C.

Most of the sun rays radiate back from surface of the sea and some of them penetrate to a certain depth in water. The intensity of such sunrays decreases. Hence, after 2000 m depth, the temperature of the sea water remains uniform at 4°C from the equatorial region to the polar areas.

(3) Briefly review the distribution of salinity of sea water on a global level.

Ans. Variation in salinity of oceans and seas is seen at the global level. Factors like temperature, evaporation, supply of fresh water, landlocked or open nature of sea decide salinity of sea water. Since the influence of these factors vary from region to region, salinity also differs to a great extent. Tropical and mid latitudinal zone has higher salinity. Temperate regions have less salinity. Equatorial region, however, has a moderate salinity. Equatorial region between 5° N and 5° S, on one hand, has cloudy sky for longer periods and receives conventional rainfall every day. Large rivers like Amazon and Congo also meet the sea in equatorial region and supply abundant freshwater. On the other hand, this region has higher temperature and more rate of evaporation. Therefore sea in these areas has a moderate to high salinity.

Landlocked seas have more salinity compared to open seas. That is why, the salinity of Atlantic Ocean is about 36‰ and Mediterranean Sea has a salinity of 39‰. Dead Sea which is completely landlocked has the highest salinity of 332‰.

Similarly, the salinity of the Bay of Bengal is about 32‰ due to cloudy sky, more cyclones and abundant supply of fresh water. Arabian Sea has a higher salinity of 36‰.

(4) Give information on variation in the temperature of sea water :

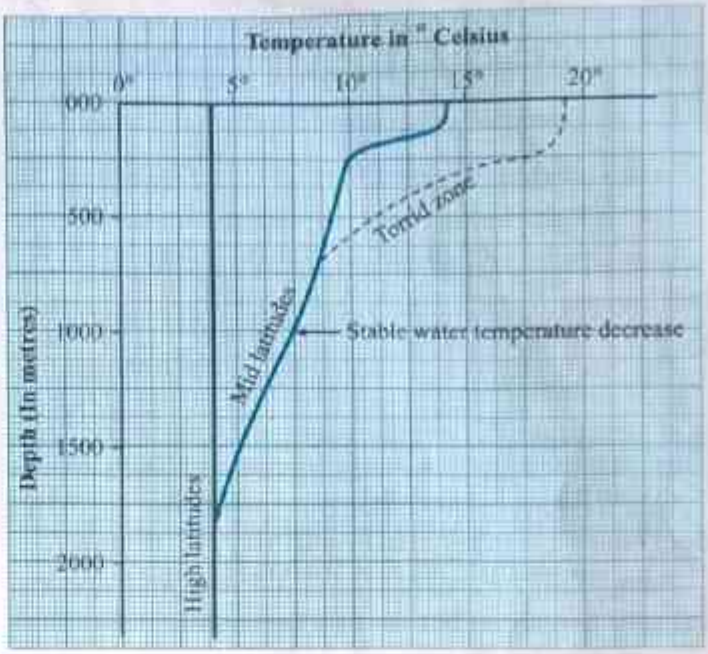
Ans. Land and water bodies vary in temperature. Surface of the land gets heated fast and cools down rapidly. Water gets heated slowly and cools down slowly. Temperature variation in heating up and cooling down of land is steep than that of water. That is why, near equator temperature of land is above 45°C while temperature of ocean is about 25°C. Near the poles the temperature of land is –25°C while it is –2°C in case of water. It is about 25°C near equator, about 16°C in mid latitude and 2°C near poles.

Surface temperature of sea water is not uniform everywhere. It changes with latitudes. It decreases from equatorial areas towards the pole. Location of the sea, ocean currents, cyclones, rainfall, sea waves, salinity, pollution, convectional moment of sea water, seasons, etc. factors influence the surface temperature of the sea. It is about 25°C near equator, about 16°C in mid latitude and 2°C near poles. It decreases with increasing depth. However, beyond a certain depth, temperature does not change much.

Temperature of the sea water changes rapidly with depth near equatorial areas. But such changes are moderate in mid latitude regions. The difference in temperature with depth is lesser in polar region. Most of the sun rays radiate back from surface of the sea and some of them penetrate to certain depth in water. The intensity of such sunrays decreases. Hence, after a certain depth, the temperature of the sea water remains same everywhere. Water at greater depth does not freeze. The temperature of an open sea is always less than those of landlocked seas.

Q. 8 Observe the following graphs and answer the following questions : *(1 Mark each)*

Figure–1 :



(1) What is the maximum temperature of sea water in equatorial areas? How much is the temperature at depth of 500 m?

Ans. The maximum temperature of sea water in equatorial areas is 18°C. At the depth of 500 m, the temperature of sea water is 11°C.

(2) What is the temperature of sea water at the sea level in the mid latitude?

Ans. The temperature of the sea water at the sea level in the mid latitude is 14°C.

(3) How much has this temperature change at 1500 m depth?

Ans. The temperature of sea water at the sea level at 1500 m depth is 5 degrees centigrade.

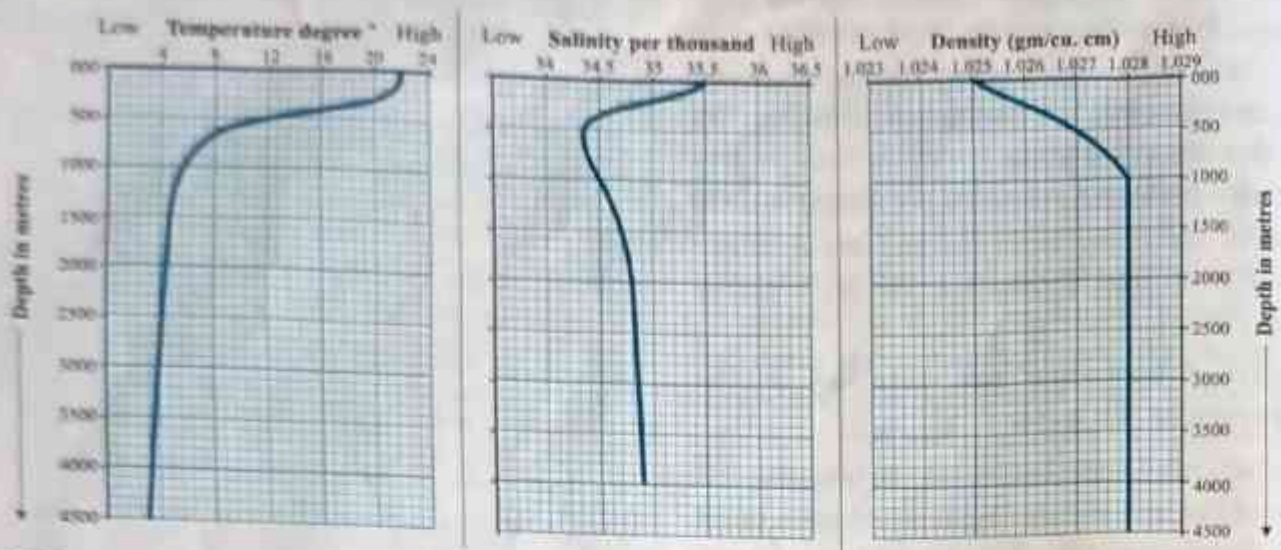
(4) What does the thermal graph of the higher latitudes say? What is its temperature at 500, 1000 and 1500 m depth?

Ans. From the graph of temperature of sea water, it is seen that the impact of depth on the temperature of sea water in the high latitude is nil. It is 4°C everywhere. The temperature of the sea water even at 500 m, 1000 m or even 1500 m depth in high latitude is uniformly 4°C.

(5) After what depth does the sea water temperature remain stable everywhere?

Ans. Temperature of sea water remains stable at 4°C after 2000 m depth across the earth from equatorial region to polar areas.

Figure - 8 :



(1) With increasing depth, what decreases : temperature, salinity, or density?

Ans. With increasing depth the temperature and salinity decreases but density increases.

(2) After what depth does the change in these factors become almost zero?

Ans. After 2000 m depth from the sea level, the difference in temperature, salinity and density becomes almost zero.

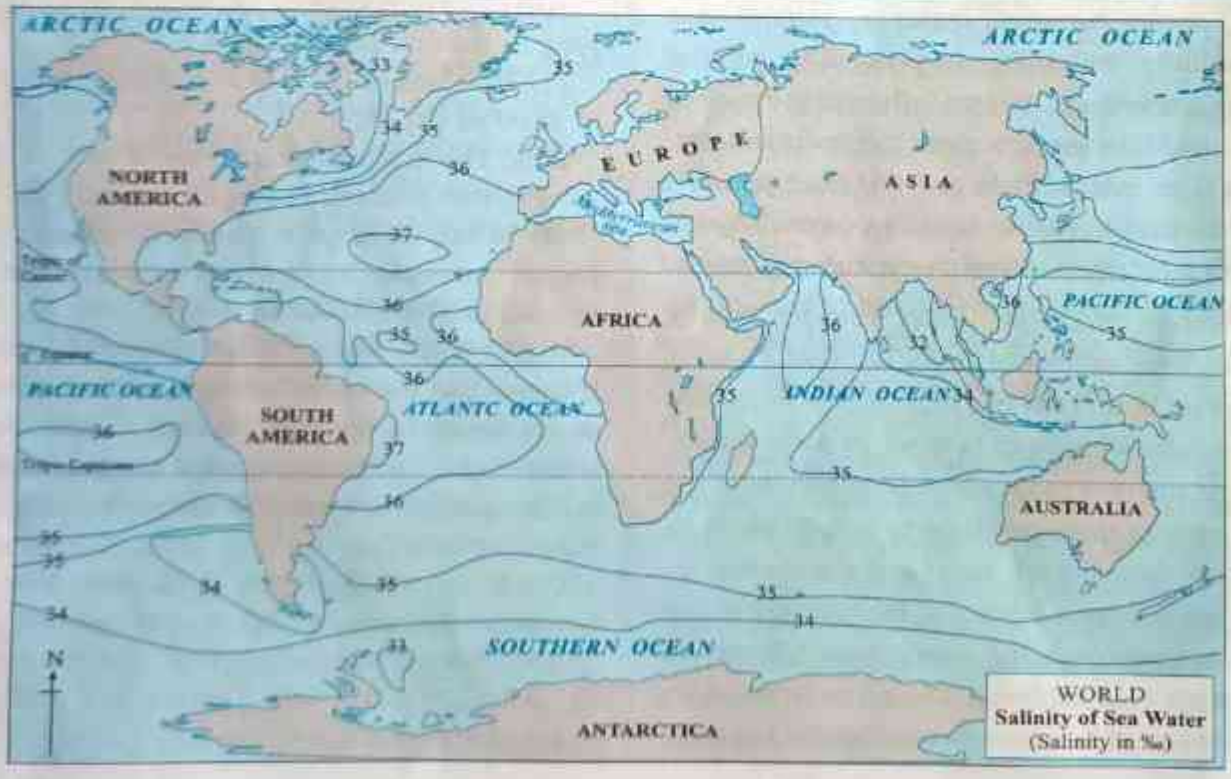
(3) Till what depth is the change in this factor higher?

Ans. After 500 m depth from the sea level, the variations in the change of temperature, salinity and density is high.

(4) Explain the correlation between all the three factors.

Ans. (i) If temperature is less, density is more. (ii) If salinity is less, then density is also less. (iii) However, if the temperature is less, then the density is more despite less salinity.

Q. 9 Study the map provided below and answer the questions : ***(1 Mark each)***



(1) What is the salinity around the tropics?

Ans. The salinity of sea water around the Tropic of Cancer is about 36 while it is 35 around Tropic of Capricorn.

(2) Which region has the least salinity?

Ans. Areas around Arctic Ocean and in the Bay of Bengal the salinity of the sea water is less and it is about 32‰.

(3) Which ocean has salinity more than 37‰?

Ans. Atlantic Ocean has salinity more than 37‰.

(4) What are the reasons of differences in salinity on a global level? Discuss in the class.

Ans. Factors like difference in temperature with latitudes, different rate of evaporation, the supply of fresh water by rivers and open or landlocked nature of the sea are various reasons responsible for differences in salinity on a global level.

Q. 10 Mark and name the following on the outline map of the world with suitable signs and symbols. Index is must. ***(1 Mark each)***

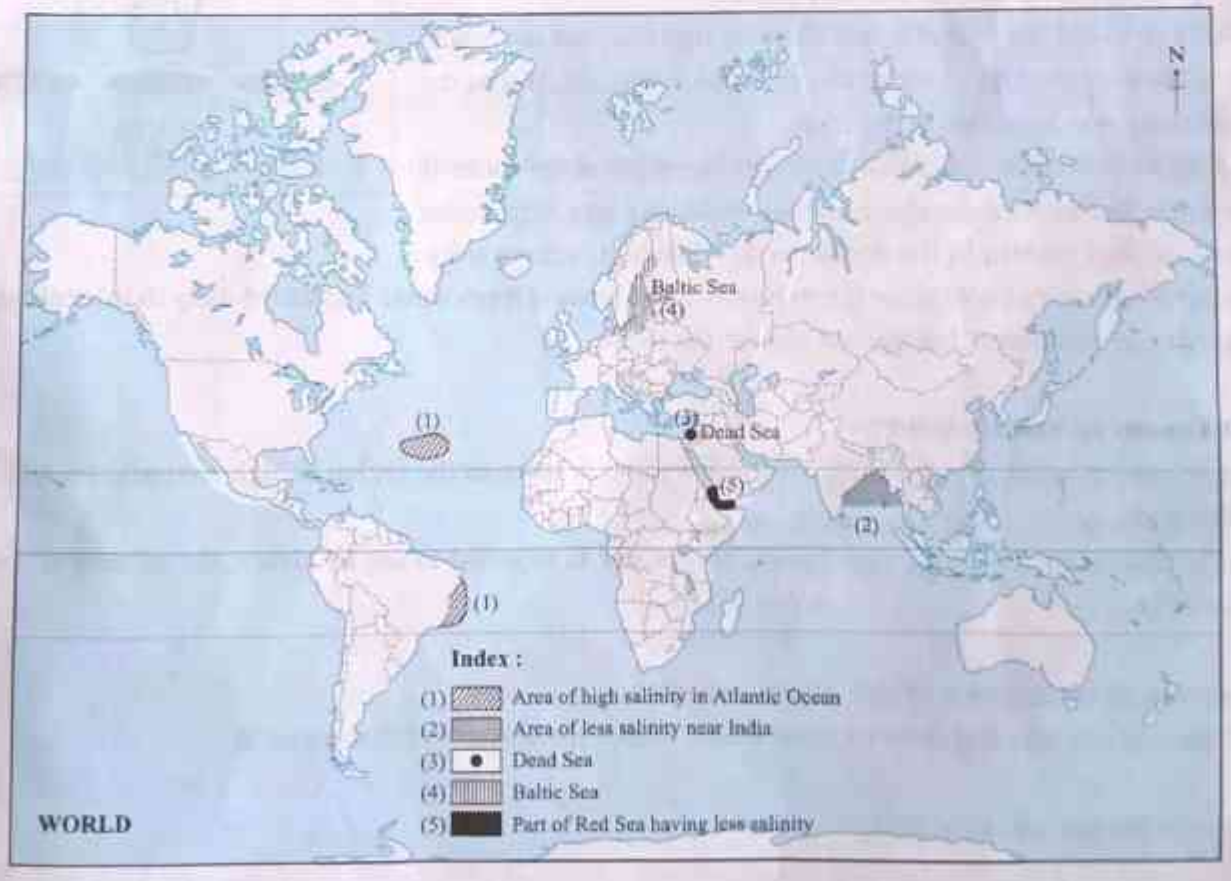
(1) Area of high salinity in Atlantic Ocean

(2) Area of less salinity near India

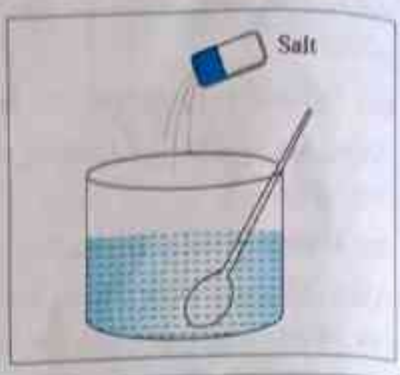
(3) Dead Sea

(4) Baltic Sea

(5) Part of Red Sea having less salinity



Variation in the salinity of sea water (Textbook pages 51-52)



(1) Take 1.5 lt of water in a big Jar, put 100 gm salt in it and stir.

(2) Now take 3 similar containers of 1 Lt. capacity. Label them as A, B and C for identification.

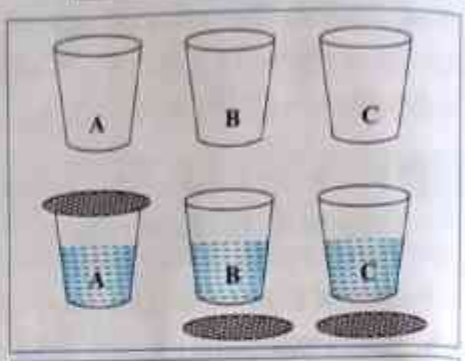
(3) Put the water containing salt equally in the three containers (About half a Lt in each container.) Taste the water. Cover all three containers with meshed lid.

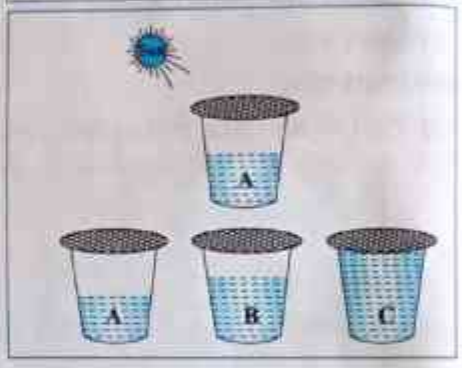
(4) Keep container A in the sun outside.

(5) Keep containers B and C inside the room.

(6) Put half a glass of fresh water daily in container C.

(7) On 5th day, bring all containers at one place, observe them carefully and also taste the water from all the 3 containers.





You would notice that –

(1) Water in container A is less than what it was 5 days before. It is because of evaporation, since this container was kept under the sun outside the room.

(2) Water in container C has increased since half a glass of fresh water was added daily in this container.

(3) Water in container B is also less than the first day, but not much. It is because the loss of water due to evaporation was less as the container was kept inside the room.

(4) Water in container A is more salty. It is because, more water is lost due to more evaporation, as this container was kept under the sun. Salt remain in the container and hence it is more salty.

(5) Salinity of water in container C was less as half a glass of fresh water was added daily in this container.

(6) Salinity in container B remained almost the same.

This happens in reality too :

- Like in case of container A, salinity of the sea water is more in the region of high temperature and high evaporation.
- Like in case of container C, when more fresh water is supplied to sea by rivers, the salinity of the sea water is less.

Mathematical estimation of the above exercise :

(1) 100 gms of salt was added to 1.5 Lt of water. Hence the salinity of this water is

$$= \frac{1}{1.5} \times 100 \text{ gm} = 66.67 = 67‰$$

(2) With 500 ml of water, container A was kept in open in the sun. Water is lost due to evaporation. Suppose, only 400 ml water is now left in container A, it means, 20% water is lost, as a result salinity will increase by 20%.

Thus 20% of 67 is 13+ 67= 80

The salinity of water in container A is now 80‰

(3) Half a glass of fresh water (100 ml) is added to container C daily. On 5th day, the container will have (Original 500 ml + 400 ml added water) 900 ml of water. It means there is a net increase of 80% of water. Thus the salinity will reduce by 80%

80% of 67 is = 53.6

So, the salinity of 900 ml water in container C will now be 67 – 54= 13‰

What would have happened if the temperature of the sea water near the sea bed would have gone below the freezing point?

Ans. In normal conditions, fresh water freezes at 0°C, i.e. at freezing point, water turns in to ice. However, water shows a peculiar characteristic of anomalous expansion at the freezing point and such water moves to the surface. Temperature of sea water at any depth can never fall below 4°C due to this anomalous expansion and hence, sea water even at the sea bed can never be frozen.

However, if at all the temperature of the sea water near the sea bed go below the freezing point, life on this earth will come to end.

Such a possibility is very rare.

ACTIVITY

* Complete the table given on page 56 of the textbook showing the salinity of open seas and landlocked seas.

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

7 INTERNATIONAL DATE LINE

Points to be studied

- Standard time
- Standard time of various countries
- Need of International Date Line
- International Date Line
- Importance of International Date Line

SUMMARY

7.1 Standard Time :

(1) World standard time is determined by the 0° meridian or Prime Meridian. Since this Prime Meridian passes through Greenwich, this time is also known as Greenwich Mean Time or GMT.

(2) Indian standard time i.e. IST is determined by 82.5° E meridian.

(3) There is a difference of 5 hours and 30 minutes between the GMT and the IST. Indian standard time is ahead of GMT. It is also mentioned as +5.30. As a result, when it is 9 a.m. at the Prime Meridian, it is 2 : 30 p.m. that is 1430 hours in India.

7.2 Standard Time of Various Countries :

(1) Every country has a different standard time. India welcomed the new year 2017 at 00.00 hours of Sunday i.e. at the midnight on Saturday, 31st December 2016.

(2) Countries located to the east of India had already celebrated the beginning of New Year before India. However, in countries located to the west of India, New Year began quite late when compared to India.

(3) Different countries have celebrated the beginning of New Year either ahead of or later than India.

7.3 Need of International Date Line (IDL) :

(1) Man had studied the natural phenomena like Rotation, Revolution and develop the chronometric system for his purpose.

(2) Earth completes one rotation in 24 hours.

(3) Earth rotates eastward. Therefore, the eastern part of the earth is always ahead of western part.

(4) When it is exactly noon i.e.12 o'clock afternoon on Greenwich, the time is ahead by 2-2 hours at every 30° latitude to the east of Greenwich. Same time, it is 2-2 hours behind the Greenwich time at every 30° latitude to the west of Greenwich.

(5) As a result of this ahead or behind timing, when it is Sunday noon at Greenwich, Sunday is just beginning to the east of 180° meridian and it is the end of Sunday in the west of 180° Meridian.

(6) It creates a difference of almost a day or 24 hours between the timing in the East and West of 180° Meridian.

(7) International Date Line is decided to overcome this confusion of 24 hour difference.

7.4 International Date Line :

(1) International Date Line is an imaginary line drawn to the opposite of Greenwich Prime Meridian, i.e. with reference to 180° Meridian.

(2) The day and date is always ahead by one day in the west of International Date Line than the day and date running in the east of International Date Line.

(3) Although the IDL is drawn with reference to 180° Meridian, International Date Line is not a straight line like 180° Meridian.

(4) In order to pass IDL only on ocean areas, IDL is turned to the east or the west of 180°. Hence, IDL is not a straight line. In other words, IDL is drawn in such a way to avoid passing over the land.

7.5 Significance of IDL :

(1) IDL has enabled the coordination between the transportation, communication, airline transport and international trade.

(2) IDL has been carved out of necessity of coordinating time and date. IDL helps to keep a track of all the calculations of the day and time accurately. It is because of IDL, that the schedules of traffic worldwide is organised properly.

QUESTIONS AND ANSWERS

Q. 1 State true or false and rewrite the correct sentence if it is false : *(1 Mark each)*

Note : This format of this question type is slightly different in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

(1) International Date Line is an imaginary line which follows exactly 180 degree Meridian.

(2) GMT is known as World Standard Time

(3) Date and day changes if you travel over from north hemisphere to south hemisphere.

(4) Time of the places in the eastern hemisphere is always ahead of Western hemisphere.

Ans.

(1) **False.** IDL is not a straight line like 180 degree Meridian. IDL turns either to the left or right in order to ensure that it passes through water body thoroughly.

(2) **True**

(3) **False.** It is not necessary that whenever one travels from north hemisphere to south hemisphere, the date and time will change. It will change only if one crosses the International Date Line during such travels.

(4) **True**

Q. 2 Select the Correct Option : *(1 Mark each)*

(1) While crossing the IDL a person will have to add one day when travelling towards.....

1. East 2. West
3. North 4. South

(2) If it is Wednesday 10 a.m. at 15° east meridian, then what will be the time at IDL?

1. Wednesday 6 a.m. 2. Wednesday 9 p.m.
3. Thursday 2 p.m. 4. Thursday 6 p.m.

(3) According to the international convention at which meridian does the day and date change occur?

1. 0° 2. 90° East
3. 90° West 4. 180°

(4) At which direction of IDL does a new day start?

1. East 2. West
3. North 4. South

(5) IDL brings coordination in which of the following?

1. GPS system
2. Defence department
3. Transportation schedules
4. Determining the hemisphere

Ans.

(1) West

(2) Wednesday 9 p.m.

(3) 180 degree

(4) West

(5) Transportation schedules

Q. 3 Answer the following questions in one sentence : *(1 Mark each)*

(1) What is World Standard Time?

Ans. The local time at zero degree meridian that is Prime Meridian is considered as 'World Standard Time'.

(2) What is meant by Standard time?

Ans. The local time of a particular meridian which is considered as the time of the whole nation or region is known as a 'standard time'.

(3) What is meant by Indian Standard Time?

Ans. The local time at 82.5° E meridian that passes through almost from the centre of India is considered as Standard Time of India i.e. 'Indian Standard Time'.

(4) What is meant by International Date Line?

Ans. An imaginary line which almost follows 180° meridian but passes thoroughly over the sea or water is known as 'International Date Line (IDL)'.

(5) By what time the GMT and IST differ?

Ans. GMT and IST differ by + 5 hours 30 minutes.

(6) While travelling in which direction if we cross IDL, we need to consider a previous day and date?

Ans. While travelling in east direction if you cross an IDL, we need to consider a previous day and date.

(7) While travelling in which direction if you cross a IDL we need to consider a next day and date?

Ans. While travelling in west direction if you cross an IDL, we need to consider a next day and date.

*Q. 4 Give reasons : *(3 Marks each)*

(1) IDL is proving to be very useful in today's time.

Ans. In today's globalisation transportation, communication, international travel and international trade has increased manifolds. Besides, this transport, travels and trade are taking place between very far off places. Hence, IDL is very useful in keeping good coordination between the date and the day which always changes due to travel. IDL is also helpful in managing proper schedule of traffic worldwide.

(2) The day starts in the Pacific ocean of the earth.

Ans. If the new day started on any land part it would have led to a confusion on the day and date to the west and east of that place. To avoid this the new date and day starts and ends on IDL. IDL is drawn with reference to 180° meridian which passes through the Pacific Ocean. This is why, the new day starts in the Pacific Ocean on the earth.

Q. 5 Explain the following : *(4 Marks each)*

***(1) What considerations have been made while deciding the IDL?**

Ans. New day and date for the whole world begins on IDL. The day and date is always ahead by one day in the west of IDL than the day and date running in the east of IDL. IDL is not a straight line like 180° meridian. 180° meridian passes even on land part of some countries. If 180° meridian itself was considered as IDL, it would have caused a great confusion of two different days and dates in the same country. Hence, an attempt was made to make the IDL pass through sea / water body. Besides, it was also ensure that a group of islands belonging to one country shall come to one side of IDL. Hence, the ideal is not a straight line. At places, it turns east or the west.

***(2) While crossing the IDL, what changes will you make?**

Ans. If IDL is crossed while travelling towards the east, a previous day and date than the original date of travel would be considered. If IDL is crossed while travelling towards the west, next day and date will be considered than the original day of travel.

***(3) Why is the IDL not a straight line like the 180° meridian?**

Ans. For the answer see the answer of Q.5 (4).

***(4) Why doesn't the IDL pass through the land?**

Ans. If IDL had passed through the land part of some country, it would have led to confusion of two different dates and days in the same country. Besides, being an imaginary line it would have been difficult to track when and where exactly the IDL has been crossed. Hence, to avoid the confusion International Date Line was drawn in such a way that it will pass through only the Pacific Ocean.

(5) Why is the IDL considered with respect to the 180° meridian only?

Ans. With some exceptions, 180° meridian passes maximum over the water part/ocean. Hence, 180°meridian was used to draw the IDL.

(6) Justify whether the date and day will change if one travels from Germany in the northern hemisphere to Brazil in the southern hemisphere by a direct flight?

Ans. If one travel from Germany in the northern hemisphere to Brazil in the southern hemisphere by a direct flight, it will cross the Prime Meridian i.e.0° meridian during the course of this journey, but not the IDL. Hence, there will not be any change in the day and date.

Q. 6 Answer the following questions in detail : ***(4 Marks each)***

(1) What difference does it make in a day and date if IDL is crossed. Explain with suitable diagram.

Ans. Due to rotation of the earth, different places observe different timings of sunrise, sunset and midnight. Earth rotates towards the east, hence the places in the east are always ahead than the places in the west. When it is noon on the Prime Meridian i.e. at Greenwich, the time is ahead by 2-2 hours at every 30° latitude to the east of Greenwich time and it is to 2-2 hours behind the Greenwich time at every 30° latitude to the west of Greenwich. When it is Sunday noon on Greenwich, it is just the beginning of Sunday to the east of 180° meridian, while Sunday is almost over in the west of 180° meridian. Time to the east and west of 180° meridian shows the difference of 24 hours. IDL is therefore drawn to overcome this problem of 24 hours difference. The day and date is always ahead by one day in the west of IDL than the day and date running to the east of IDL. Hence, when the IDL is crossed while travelling towards the west, one day is added to the day and date of original travel, while a previous day is considered when one crosses the IDL while travelling towards the East.

(2) Explain the significance and use of IDL.

Ans.

1. IDL brings an excellent coordination between international communication, transport, travel and trade.
2. IDL helps to keep track of all calculations of the day and time accurately.
3. IDL helps in proper organisation of global traffic schedules.
4. IDL passes thoroughly on the Pacific Ocean and follows maximum the 180° meridian.
5. The new day of the world starts and ends at IDL.

•Q. Using an Atlas, tell in which of the following routes the IDL will be crossed and show them on the map. ***(1 Mark each)***

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

(1) Mumbai – London – New York – Los Angeles

(2) Tokyo – Delhi – Kolkata – Singapore – Melbourne

(3) Kolkata – Hong Kong – Tokyo – San Francisco

(4) Chennai – Singapore – Tokyo – Sydney – Santiago

(5) Delhi – London – New York

Ans.

No.	Routes	Weather this journey involves the crossing of IDL?	
1.	Mumbai – London – New York – Los Angeles	No	✗
2.	Tokyo – Delhi – Kolkata – Singapore – Melbourne	No	✗
3.	Kolkata – Hong Kong – Tokyo – San Francisco	Yes	✓
4.	Chennai – Singapore – Tokyo – Sydney – Santiago	Yes	✓
5.	Delhi – London – New York	No	✗

Q. 8 Answer the following questions by reading a table : *(1 Mark each)*

Activity 1 :

Study the table given on page 57 of the textbook and answer the questions given below the table.

Ans. With reference to Indian standard time, different countries have welcome the New Year 2017 either ahead of India or later than India. Such table is given below.

No.	Name of the country welcoming New Year 2017	Day and time when the country welcome New Year 2017	Indian standard time at that moment	Time difference in welcoming New Year 2017 either ahead or later of India
1.	Samoa Island-Apia	Saturday Midnight 24.00 i.e. Sunday 00.00	Saturday 1530 hrs (3.30 pm)	8 hours 30 minutes ahead of India
2.	New Zealand-Auckland	Saturday Midnight 24.00 i.e. Sunday 00.00	Saturday 1630 hrs (4.30 pm)	7 hours 30 minutes ahead of India
3.	Tuvalu-Funafuti Island	Saturday Midnight 24.00 i.e. Sunday 00.00	Saturday 1730 hrs (5.30 pm)	6 hours 30 minutes ahead of India
4.	Australia-Sydney	Saturday Midnight 24.00 i.e. Sunday 00.00	Saturday 1830 hrs (6.30 pm)	5 hours 30 minutes ahead of India
5.	Japan-Tokyo	Saturday Midnight 24.00 i.e. Sunday 00.00	Saturday 2030 hrs (8.30 pm)	3 hours 30 minutes ahead of India
6.	India	Saturday Midnight 24.00 i.e. Sunday 00.00	Saturday midnight 24.00 i.e. Sunday 00.00	—
7.	England-London	Saturday Midnight 24.00 i.e. Sunday 00.00	Sunday 0530 hrs i.e. Sunday Early morning 5.30 am	5 hours 30 minutes later than India
8.	USA-New York	Saturday Midnight 24.00 i.e. Sunday 00.00	Sunday 1030 hrs i.e. Sunday morning 10.30 am	10 hours 30 minutes later than India
9.	USA-Baker island	Saturday Midnight 24.00 i.e. Sunday 00.00	Sunday 1730 hrs i.e. Sunday evening 5.30 pm	17 hours 30 minutes later than India

Based on the table above, the answer of questions on page 57 of the textbook.

(1) Which location was the first to welcome New Year in the world? What day was it then?

Ans. At 00.00 hrs of Sunday, Apia on Samoa Island welcomed the New Year 2017 first in the entire world. The time there was either 24.00 hours of Saturday midnight or 00.00 hours of Sunday.

(2) Which location bid farewell to the year 2016 the last of all?

Ans. The last place to bid farewell to the year 2016 was Baker island of USA.

(3) On which day did that location welcome 2017?

Ans. Baker island of USA welcome the New Year 2017 on Saturday 24.00 hours that is Sunday 00.00 hours. At that time, in India, it was 1730 hours i.e. 5 : 30 p.m. of Sunday 1st January 2017.

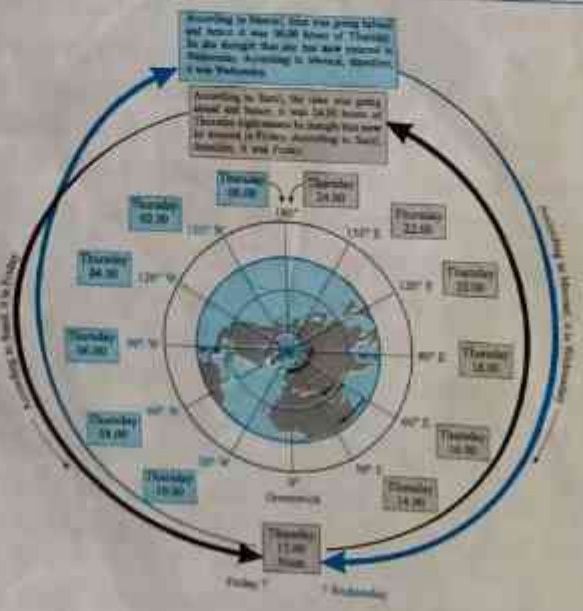
(4) What could be the reason behind the change in the day of Sydney and London?

Ans. When Sydney welcome the New Year 2017, it was Saturday in India. When London welcome the New Year 2017, it was Sunday in India. Sydney is located to the east of India and hence, its time is always ahead of India. London is located to the west of India and hence, its time is always behind India. Thus, difference in time has caused the change in the day in India, when Sydney and London actually welcomed the New Year 2017.

Activity 2 :

Complete the table given on page 58 of the textbook and answer the questions.

Table A			Table B		
Meenal's Observation			Sunil's Observation		
Meridian	Day	Time	Meridian	Day	Time
0° Greenwich	Thursday	12.00 noon	0° Greenwich	Thursday	12.00 noon
30° W	Thursday	1000 hrs i.e. morning 10.00 am	30°E	Thursday	1400 hrs i.e. afternoon 2.00 pm
60°W	Thursday	0800 hrs i.e. morning 8.00 am	60°E	Thursday	1600 hrs i.e. evening 4.00 pm
90°W	Thursday	0600 hrs i.e. morning 6.00 am	90°E	Thursday	1800 hrs i.e. evening 6.00 pm
120°W	Thursday	0400 hrs i.e. early morning 4.00 am	120°E	Thursday	2000 hrs i.e. night 8.00 pm
150°W	Thursday	0200 hrs i.e. night 2.00 am	150°E	Thursday	2200 hrs i.e. late night 10.00 pm
180°	Thursday	0000 hrs i.e. midnight 12.00 o' clock	180°	Thursday	2400 hrs i.e. midnight 12 o' clock
150°E	Wednesday	2200 hrs i.e. late night 10.00 pm	150°W	Friday	0200 hrs i.e. Night 2.00 am
120°E	Wednesday	2000 hrs i.e. night 8.00 pm	120°W	Friday	0400 hrs i.e. early morning 4.00 am
90°E	Wednesday	1800 hrs i.e. evening 6.00 pm	90°W	Friday	0600 hrs i.e. morning 6.00 am
60°E	Wednesday	1600 hrs i.e. evening 4.00 pm	60°W	Friday	0800 hrs i.e. morning 8.00 am
30°E	Wednesday	1400 hrs i.e. afternoon 2.00 pm	30°W	Friday	1000 hrs i.e. morning 10.00 am
0°Greenwich	Wednesday	1200 hrs i.e. 12 o'clock noon	0° Greenwich	Friday	1200 hrs i.e. 12 o'clock noon



(1) What is the day at zero degree Meridian at Greenwich after completing the table A?

Ans. When Meenal fills Table A , it was Wednesday at Greenwich Prime Meridian.

(2) What is the day at 0° meridian at Greenwich after completing the table B?

Ans. When Sunil fills Table B, it was Friday at Greenwich Prime Meridian.

(3) Though both were at the same place, why were they experience different days? How did this happen?

Ans. Both have across the International Date Line during their journey. On crossing IDL, Minal should have considered the next day of Wednesday that is Thursday while Sunil should have considered a previous day of Friday i.e. Thursday. Since both ignore to make the changes, both were experiencing different days.

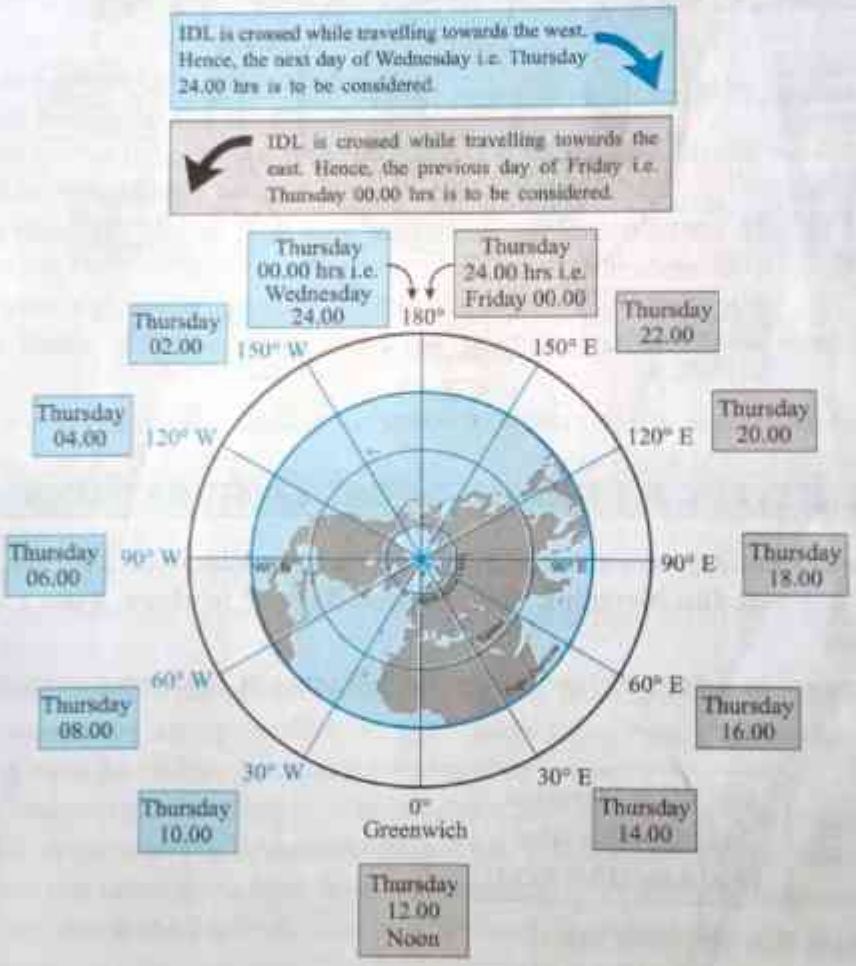
(4) How many days occurred while doing this activity? Name them.

Ans. While doing this activity, 3 days came in reference as Wednesday, Thursday and Friday.

(5) Which day is correct, Wednesday in Table A or Friday in table B?

Ans. Both, Wednesday of Table A and Friday of table B are wrong. Thursday is the correct answer.

Minal started her journey towards west. When IDL is crossed while travelling towards west, it is necessary to consider next day that is adding one day and date. According to Meenal it was Wednesday at 180° meridian. When she crossed that, she was required to add one day in Wednesday, thus she entered in Thursday. So she should have considered it's Thursday.



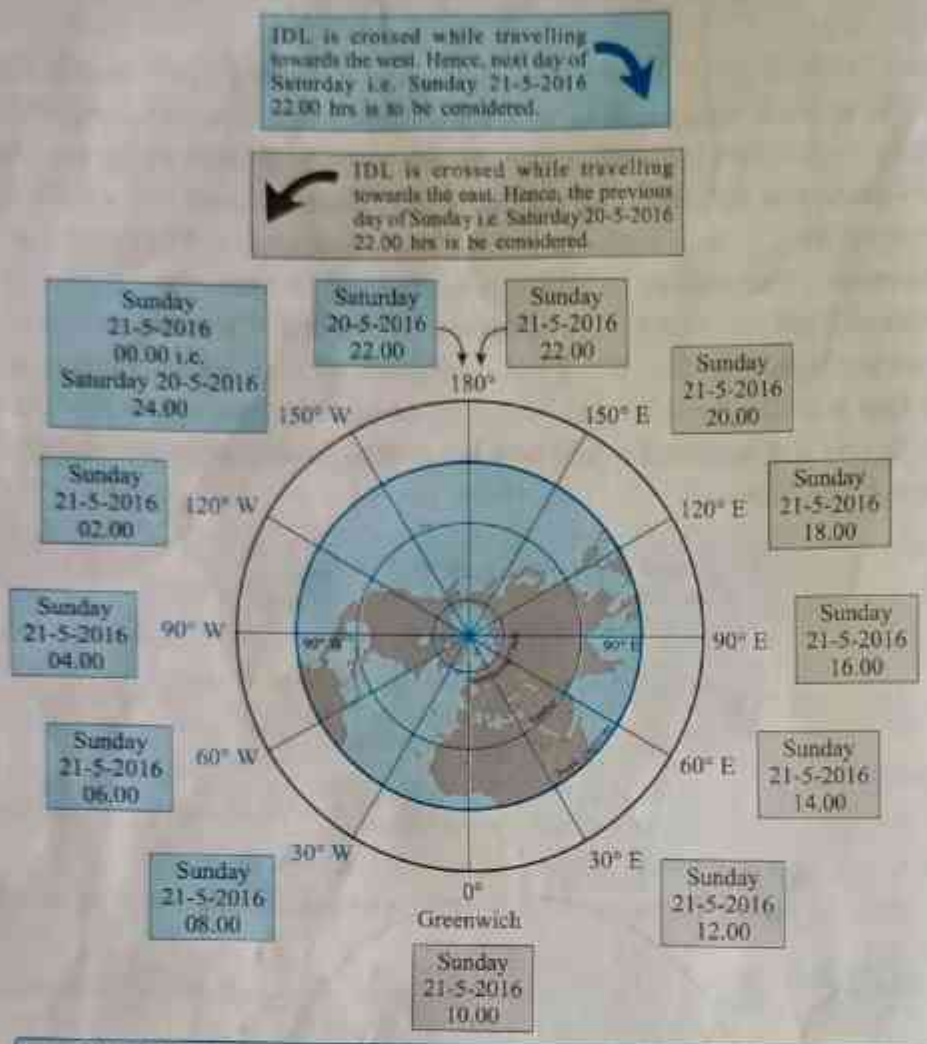
When Sunil started his journey towards east and when IDL is crossed while travelling towards east, it is necessary to consider a previous day and date. According to Sunil it was Friday at 180° meridian and he should have considered a previous day of Friday i.e. Thursday. So he entered in Thursday.

Thus, when both Minal and Sunil considered proper next or previous day after crossing IDL and return to Prime Meridian, it would be Thursday for both of them and therefore there will not be any confusion at all.

Activity 3 :

Now read the activity given on page 59. Tell us the changes that you will have to make while crossing the IDL i.e.180° meridian. Your travel will start on Sunday 21st May 2016 at 10 a.m.

Ans. The changes necessary to do once the journey started on Sunday 21st May 2016 at 10 a.m are explained in the diagram below.



ACTIVITY BASED/OPEN ENDED QUESTIONS

Activity 1 :

• Two boxes in different hemispheres are given in the following diagram. The IDL passes through both these boxes. In one box the Meridian, day, date and time* is given. Find the day, date and time for the other box.

(*As this question cannot be solved without giving the reference of time, necessary change is made in the question.)

150° E Meridian Day ..... Date	IDL	150° West Meridian Monday 15th Aug. 10.00 a.m. (1000 hrs.)

Ans. Tuesday 16th Aug. 6.00 am. (0600 hrs.)

170° E Meridian Sunday 25th Dec. 4.30 p.m. (1630 hrs)	IDL	80° West meridian Day ..... Date .....

Ans. 24th Dec. 10.00 p.m. (2200 hrs.)

Activity 2 :

Examine a ticket of UA 876 Boeing 787-9 Dreamliner closely and find the answers to the following questions :

(1) From which country will the plane take off and where will it go?

Ans. The plane will fly from Japan to US.

(2) What is the duration of the flight?

Ans. This is a nonstop direct flight and will take 9 hours 15 minutes to reach the destination.

(3) What is the day, date and time given at the starting point and destination of the flight?

Ans. The journey will start from Tokyo in Japan on Friday 1st April at 12 : 30 a.m. that is 00.30 hrs of Friday. The destination of the journey is San Francisco in California, US and flight will reach there on Thursday 31st March 5 : 45 p.m. that is 1745 hrs.

(4) What special note is given on the air ticket?

Ans. Special note on the ticket states that the journey by this flight involves a date change.

(5) What could be the reason behind giving such a note?

Ans. The very purpose of giving this note is to make passenger aware that in compare to the date of starting the journey, the local day and date will be different at the destination. Accordingly they should plan. Thus, the note is given for the convenience of the passengers.

(6) During this flight, will the plane cross the IDL? If yes then from which direction to which direction?

Ans. The flight will cross the IDL during the journey. When the IDL is crossed while travelling towards the east, previous day is to be considered. The journey of this flight is to start on Friday 1st April and journey is going to complete on previous day that is 31st March. It means the flight will cross IDL while travelling towards the East.

(7) What did you understand by reading the tickets?

Ans. We understood from the ticket that the day and date changes if IDL is crossed during the journey.

Activity 3 :

You are travelling from Kamchatka Peninsula in the Northern hemisphere to New Zealand in the southern hemisphere along the IDL. It is Monday 22nd June in Northern hemisphere. What will the day and date be in the southern hemisphere?

Ans. Kamchatka Peninsula in the Northern hemisphere and New Zealand in the southern hemisphere lie to the same side i.e. in the west of International Date Line. The journey does not involve the crossing of IDL. Hence, even the journey takes place from the north hemisphere to south hemisphere, day and date will not change when we will reach the destination in New Zealand. It will be the same Monday 22nd June.

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

8 INTRODUCTION TO ECONOMICS

Points to be studied

- **Economics :** origin, nature, definition and scope
- Major types of Economy
- Functions of Economy
- Features of Economy
- Globalization

SUMMARY

8.1 Origin of Economics :

(1) The management of individual or family finances related to income and expenditure is economic factors. This led to the birth of economics.

(2) The word 'economics' is derived from the Greek word 'OIKONOMIA' which means 'family management'.

(3) There is a lot of similarity between family management and economics.

8.2 Nature of Economics :

(1) We learn from economics, how to use time, money, labour and land efficiently.

(2) Economics is an important social science. We use economics in agriculture, trade, finance, administration, law and in our day-to-day life.

(3) Economics is of paramount importance in the process of social development.

8.3 Definition and scope of Economics :

(1) Adam Smith is regarded as 'the father of economics'. In his book, 'Wealth of Nations', published in 1776, Smith has defined economics as 'the science of wealth'.

(2) According to Lionel Robbins, *'Economics is a science which studies human behaviour as a relationship between unlimited ends (wants) and scarce means which have alternative uses.'*

(3) How to satisfy the infinite needs of the people using various resources is studied in economics.

8.4 Economy :

(1) In geographical terms, economy is an enterprise related to the production, distribution and consumption of goods and services in a specific region.

(2) **The features of Economy are :**

(i) Geographical area, with well-defined boundaries

(ii) Population, i.e. people undertaking various economic activities

(iii) Natural resources

(iv) Political sovereignty

(3) **There are three types of economy at the global level :**

(i) Capitalist economy

(ii) Socialist economy

(iii) Mixed economy

(4) **The features of the Capitalist economy are :**

(i) Private ownership and management of means of production

(ii) The main aim is to earn maximum profit.

(iii) Germany, Japan and the USA have adopted Capitalist economy.

(5) **The features of the Socialist economy are :**

(i) The means of production belong to the society as a whole and are under control of the government.

(ii) The main aim is to achieve social welfare.

(iii) China and Russia have Socialistic economy.

(6) **The features of the Mixed economy are :**

(i) There is co-existence of private and public sectors.

(ii) A balance between profit and social welfare is obtained.

(iii) India, Sweden, and the UK have Mixed economy.

8.5 Functions of an Economy :

(1) To decide the product and quantity of its production.

(2) To decide for whom the goods will be produced.

(3) To minimise the production costs.

(4) To distribute national income to achieve social and economic justice.

(5) To make appropriate provisions for the economic needs of the future generations.

Thus, an economy strives to create a balance between limited resources and unlimited needs.

8.6 Globalisation of economy :

(i) The recent economic policies of the Government of India are taking the economy towards globalisation.

(ii) Globalisation means aligning the country's economy with the world economy.

(iii) There is free trade and all restrictions on foreign direct investments are set aside.

(iv) Globalisation aims at building a borderless economy in which natural resources, profit, services, capital, labour and technology flow freely across the countries.

QUESTIONS AND ANSWERS

Q. 1 Answer the following questions in one sentence : *(1 Mark each)*

***(1) To which economic factor is the management of individual or family finance related?**

Ans. The management of individual or family finance is related to income and expenditure.

***(2) From which Greek word is the term 'Economics' derived?**

Ans. The term 'Economics' is derived from the Greek word OIKONOMIA.

(3) What is meaning of OIKONOMIA?

Ans. OIKONOMIA means family management.

***(4) To whom does the ownership and management of means of production belong in the capitalist economy?**

Ans. The ownership and management of means of production belong to the private individuals in the capitalist economy.

***(5) What do you understand by Globalisation?**

Ans. Globalisation means aligning the country's economy with the world economy.

(6) How do we learn to use the time, money, labour and land effectively?

Ans. We learn to use the time, money, labour and land effectively from economics.

(7) What is the subject matter of economics?

Ans. The subject matter of economics is how to satisfy the infinite needs of the people by using the various resources.

(8) Give geographical explanation of economy.

Ans. In geographical terms, the enterprise related to the production, distribution and consumption of goods and services in a specific region is called economy.

(9) What are the types of economy at the global level?

Ans. Capitalist, socialist and mixed economy are the types of economy at the global level.

(10) Which economist is known as the father of economics?

Ans. Adam Smith is known as the father of economics.

(11) Which book of Adam Smith was published in the year 1776?

Ans. 'Wealth of Nations', a book written by Adam Smith, was published in the year 1776.

(12) How does Adam Smith describe economics in his 'Wealth of Nations'?

Ans. In the book 'Wealth of Nations' Adam Smith describes economics as 'the science of wealth'.

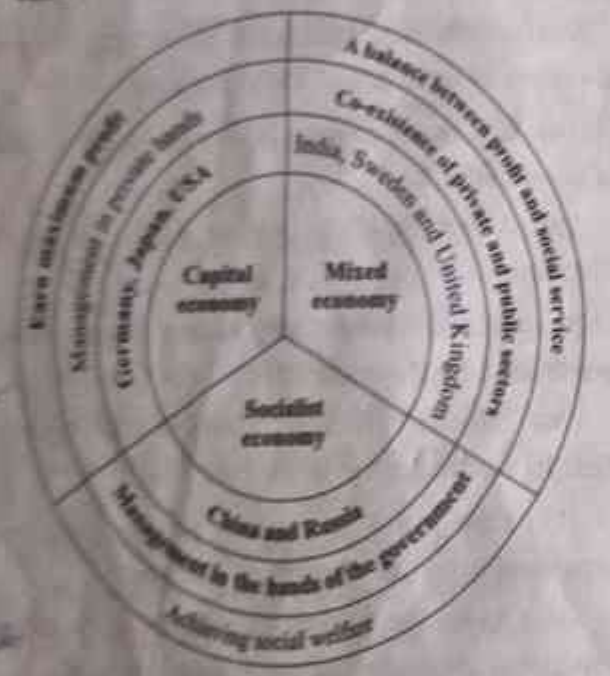
(13) What is World Economy?

Ans. World Economy is a borderless economy in which natural resources, profit, services, capital, labour and technology flow freely across the countries.

Q. 2 Explain the following : *(1 Mark each)*

***(1) Explain the types of economies by filling correct information in the place of question in the circle :**

Ans.



***(2) Economy begins at home.**

Ans. (1) The family finance is mainly related to income and expenditure.

(2) Income of the family is limited and its needs are infinite.

(3) The head of the family is required to balance income and expenditure.

(4) In order to strike a balance between income and expenditure, he decides preference for expenditure.

(5) As we manage the finance of our family, similarly the villages / cities, states, countries and the whole world needs to have economic management.

***(3) India has mixed economy.**

Ans. (1) There is coexistence of the public sector and private sector in the Indian economy.

(2) The ownership and management of means of production are divided between the government and the private individuals.

(3) The private sector undertakes production for the profit motive, whereas the State tries to achieve social welfare.

(4) In this way, we have the features of both, the capitalist economy and the socialist economy.

Therefore, it is said that India has mixed economy.

***(4) We can divide countries into three groups on the basis of economies.**

Ans. (1) The enterprise related to the production, distribution and consumption of goods and services in specific regions is called economy.

(2) The ownership and management of production is in the hands of private individuals in the countries like Germany, Japan and the USA. This economy is known as Capitalist Economy.

(3) The means of production belongs to the society as a whole and there is control of government over the economy in Russia and China. This economy is called Socialist Economy.

(4) There is coexistence of the public and private sector in India, Sweden and the UK. This is called Mixed Economy.

Thus, we can classify countries into three groups on the basis of their economy.

(5) Economics is an important social science.

Ans. (1) The various activities of human beings are studied in social sciences.

(2) Economic activities of human beings are studied in agriculture, trade, finance, administration, law and in our day to day life.

Therefore, economics is an important social science.

Q. 3 Answer the following questions in detail : ***(4 Marks each)***

(1) Write description of economics given by Lionel Robbins.

Ans. (1) According to Lionel Robbins, *'Economics is a science which studies human behaviour as a relationship between unlimited ends (wants) and scarce means which have alternative uses.'*

(2) Since the wants are unlimited their priority is determined.

(3) The satisfaction of the basic needs are given priority.

(4) A scarce resource like land can be used either for agriculture or industries or development of infrastructure.

(5) In this way, economics studies human behaviour related to unlimited wants with limited resources that have alternative uses.

(2) Explain the nature of the capitalist economy.

Ans. (1) The ownership and control of means of production is in the hands of the private individuals in the capitalist economy.

(2) There is no control of the government over economic activities in their 'Free Market Economy'.

(3) The objective of economic activities is to earn maximum profit.

(4) Capitalist economy exists in Germany, Japan and the USA.

(3) Explain the nature of the socialist economy.

Ans. (1) In the quest to earn maximum profit the capitalists ignored social welfare.

(2) As a reaction to this, the socialist economy emerged.

(3) There is no private ownership of means of production as these belong to the society as a whole.

(4) There is total control of the State over economy.

(5) The objective of the economic activities is fulfilment of social needs (social welfare).

(6) Socialist economy exists in Russia and China.

(4) Distinguish between Capitalist Economy and Socialist Economy.

Ans.

Capitalist Economy	Socialist economy
1. Ownership and management of means of production is in the hands of the private individuals.	1. The means of production belong to the society as a whole and are under the control of the government.
2. To earn maximum profit is the main aim of the capitalist economy.	2. To achieve social welfare is the main aim of the socialist economy.
3. The USA, Germany and Japan have capitalist economy.	3. Russia and China have socialist economy.

(5) What are the main features (components) of economy?

Ans. (1) Economy is an enterprise related to the production, distribution and consumption of goods and services in a specific region.

(2) **The main components of economy are :**

(i) Well-defined geographical area.

(ii) Population, i.e. the people living within that geographical area and undertaking various economic activities.

(iii) Natural resources to undertake economic activities.

(iv) Political sovereignty that exercises control over the economy.

(6) Write the functions of the economy.

Ans. The main functions of the economy are as follows :

(1) To decide the products and the quantity of production.

(2) To decide for who, i.e. which section of the society the goods are to be produced.

(3) To minimise the cost of production

(4) To distribute national income, keeping in view social and economic justice.

(5) To make appropriate provisions for the economic needs of the future.

(6) To strive to balance limited resources (of the country) and unlimited needs (of the people).

(7) Explain the nature of globalisation.

Ans. (1) Globalisation means aligning the economy of the country with the world economy.

(2) There is free trade and all restrictions on (foreign) investments are set aside.

(3) There is free flow of natural resources, profit, services, capital, labour and technology across the world.

(4) The endeavour is to establish a borderless economy.

(5) The recent economic policies of the government are leading the economy towards globalisation -world economy.

ACTIVITY BASED/OPEN ENDED QUESTIONS

Q. 1. The details of the budget, i.e., income and expenditure of the 'X' family are given on page 64 of the textbook. Prepare the revised budget as per your preferences / priorities on the basis of the table given below :

Sr. No.	Items	Estimated Expenditure
1.	Daily food	6,000
2.	Buy two sets of uniforms	2,000
3.	School stationery	500
4.	Medical expenditure	450
5.	Recreation	350
6.	Mobile bill	500
7.	Vegetable, fruits, etc.	1000
8.	Public transport expense	2000
9.	Electricity bill	1200
10.	Tourism	-
11.	Bank instalment	3000
	Total expenditure	**17,000**

Income : 20,000
Expenditure : 17,000
Saving : 3,000

Q. 2. Discuss the revised budget.

(1) Which items of expenditure did you not change?

Ans. Food, uniform, school stationery, medical expenditure, fruits and vegetables and bank instalment has not been changed.

(2) Why did you not change expenditure on these items?

Ans. No change was made as food, electricity, shelter, education and health are the basic human needs.

(3) For which loan is the instalment paid every month?

Ans. While purchasing house, a loan was taken from the bank and the same is being repaid regularly by EMI.

(4) Expenditure on which items was curtailed?

Ans. Expenditure on recreation, mobile, public transport and electricity was curtailed because these are items of comfort and luxury. Travelling by bus or local train instead of rickshaw / taxi will reduce expenditure on public transport. By careful use, expenditure on electricity could be reduced. Mobile phone is a luxury and excess expenditure on that is unnecessary.

(5) Why did you totally curtail expenditure on tourism?

Ans. Tourism can be undertaken once / twice a year from the savings.

(6) Why should expenditure be less than income?

Ans. A person becomes debt-ridden when the expenditure is in excess of income. Repayment of loans becomes difficult as the income is limited. It results in increasing burden of loan and interest thereon. This adversely affects the family atmosphere.

(7) Why should one make saving a habit?

Ans. Saving is a healthy habit. It is necessary to make provisions for any emergency that may arise in future. Besides this, occasional expenditure such as tourism can be met from the savings. One learns to economize by cultivating the habit of regular saving.

(8) To which economic class do you belong?

Ans. Our family belongs to middle class. We cannot afford to indulge in unnecessary expenditure. Our parents take care of our food, education and health. After that, wherever possible, we indulge in recreation. However, we never indulge in expenditure beyond our means.

Q. 3. Suppose you are the finance minister of an agrarian country. Giving priority to overall development of the country, prepare a five-point programme.

Ans. Keeping in view the agrarian nature of the economy, I will prepare a five-point programme for overall development as under :

(1) Modernisation of agriculture, encouragement to export-oriented agro-processing industries.

(2) Spread of formal education and skill training for farmers and village artisans.

(3) Provision of easy loans for agriculture, small and cottage industries.

(4) Infrastructure development for rural industrialisation.

(5) Encouragement to agriculture-allied activities like dairy farming to supplement income of the people in the rural areas.

ACTIVITIES

- **(1)** Obtain information about contribution of one Economist. Prepare a paper and present it in the class.
- **(2)** Consider income and expenditure of your family and prepare an account statement of the same.

(1) Pictorial Activity :

(i) Identify the person in the picture.

(ii) What was his work?

(iii) What was his contribution to economics?

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

9 TRADE

Points to be studied

- **Trade** : Concept and Types
- International trade
- Balance of trade
- Marketing
- Advertisement
- Some international trade and economic organisations

SUMMARY

9.1 Concept of Trade :

(1) We have various needs in our day-to-day life. We buy various things to satisfy these wants. When we buy them, we create a demand for them.

(2) Production of these goods is carried out to fulfil the demand. The producers supply these goods.

(3) Buying and selling of goods is done to fulfil each others' needs. Those who purchase are the **consumers** of the goods. The **producer** produces and the **sellers** sell the goods. This activity of buying and selling goods is called **trade**.

(4) Trade is an important economic activity because the economic life of people is interdependent. No region or country is self-sufficient.

(5) The region or country which has goods in excess, supplies these goods/commodities to those regions or countries which are deficit as per their demand.

(6) Trade is an age-old concept. In ancient and medieval periods, trade was done through the **barter system**. There was no currency used in the barter trade.

(7) However, in this process the problem of estimating a proper price of commodities arises. As a result, the use of currency started.

(8) Today trade is carried out with the help of currency only. Barter system still exists in the remote areas amongst the tribal people.

(9) Buying and selling of goods, is called **visible trade**. An exchange of services is called **invisible trade**.

9.2 Types of Trade :

Types of Trade
- On the basis of quantity of goods
  - Wholesale trade
  - Retail trade
- On the basis of the extent of trade region
  - Domestic/ Internal trade
  - International/ External trade
    - Import
    - Export

(1) **On the basis of the Quantity of Trade** : The following are two types of trade on the basis of quantity of trade :

(a) Wholesale Trade : The traders buys large quantity of commodities directly from the producers and sells the same to the retail traders. This is called Wholesale Trading.

(b) Retail Trade : The traders buy goods from the wholesale traders and sells it directly to the customers, in the smaller quantities. This is called Retail Trading.

(2) **On the basis of the Extent of Trade** : The following are two types of trade on the basis of the extent of trade :

(a) Domestic/Internal Trade : It takes place between the different regions within the same country. The size of the country, diversity, availability of natural resources, transport and communication, standard of living of the people, marketing system, etc. affect the internal trade. There is a positive relation between economic growth and trade.

(b) International/External Trade : It takes place between two or more countries. There is exchange of goods and services in one form of

exports and imports. When international trade takes place between two countries it is called bilateral trade. When it takes place between more than two countries, it is called multilateral trade.

Import and Export :

(1) Import and export are the basic processes of international trade.

(2) **Import** is buying of the commodities, goods and services that are scarce in the country from the other country.

(3) **Export** is selling of excess goods and services to countries which have a demand for it.

9.3 Balance of Trade :

(1) The difference between the value of imports and the value of exports in a specific period is called **balance of trade**.

(2) Unfavourable balance of trade arises when the value of imports is more than the value of exports.

(3) Favourable balance of trade takes place when the value of exports is more than the value of imports.

(4) When there is not much difference in the value of exports and imports it is called Balance of Trade.

9.4 International Trade :

(1) International trade is more complex than domestic trade due to :

(i) differences in the nature of economy;

(ii) differences in the policies of the government;

(iii) differences in market, laws, judicial system, currency, language, etc.

(2) The political relations also influence trade between two countries in international trade.

(3) To avoid the differences and obstacles between the countries, International economic and trade organisations were established.

(4) They smoothen and promote international trade. They facilitate the growth of international trade.

(5) A brief description of some organisations is given below.

INTERNATIONAL TRADE AND ECONOMIC ORGANISATIONS

Name of the international trade organisation	Number of member-states and logo	Headquarters (Country)	Aims/Functions
World Trade Organisation (WTO)	164	Geneva (Switzerland)	• To provide platform for negotiations in international trade • To handle the differences related to trade • Monitor the trade policies of member states • Providing technological assistance and training to developing countries
European Union (EU)	28 European Union	Brussels (Belgium)	• Established an integrated market amongst member nations in Europe. • Free flow of goods, services and capital in Europe. • Custom duties have been cancelled on exchange of goods within members • Common 'Euro' currency established
Organisation of Petroleum Exporting Countries (OPEC)	13	Vienna (Austria)	• Controlling the international trade of crude oil • Controlling the rates of crude oil production among member states • Maintaining consensus in oil export

International trade organisation	Number of member-states and logo	Headquarters (Country)	Aims/Functions
South Asian Association for Regional Cooperation (SAARC)	8 SAARC	Kathmandu (Nepal)	• Finding satisfactory solutions to the common problems faced by countries in South Asia. • Increasing social welfare, raising the living standard and increasing regional cooperation among member states • To remove unrest in South Asia
Association of South-East Asian nations (ASEAN)	10 asean	Jakarta (Indonesia)	• Expanding social and cultural harmony along with economic growth in SE Asia • Promoting regional peace • Promoting tax waivers for trade growth in member states
Asia-Pacific Economic Cooperation (APEC)	21 APEC Asia- Pacific Economic Cooperation	Singapore	• Free trade and economic cooperation in Asia-Pacific Ocean region • Promoting regional and technical cooperation among members
Brazil, Russia, India, China and South Africa (BRICS)	5 BRICS	Shanghai (China)	• Make funds available for growth of economies of members • Enhancing mutual economic cooperation • Strengthening economic security

9.5 Marketing :

(1) Marketing is an invisible flow of the activities that begins with the production of goods and ends with the product reaching the consumers.

(2) The activities involved are :
(i) Production (ii) Classification (iii) Branding (iv) Labelling and (v) Packaging

(3) Thereafter, pricing, sales promotion and distribution of goods takes place.

9.6 Importance of Marketing :

(1) An appropriate presentation of any commodity is necessary. The price of commodity is determined by its quality, grading and presentation.

(2) These increase the value of the product. Good marketing promotes business/trade.

(3) Marketing is essential in today's industrial society, in the age of globalisation and availability of alternative products/choices.

(4) Business can be increased systematically by marketing. The products can reach large number of customers. The selling price can be increased. Thus, marketing is a vital component of trade.

(5) 'E-marketing' and 'Online trading' are the recent developments in marketing.

(6) Due to information technology and electronic media the whole world has become a big single market.

(7) It makes available information about the goods manufactured all over the world. There are numerous alternatives available to the consumers.

9.7 Advertisement :

(1) Advertising is a part of the sales promotion activity. It attracts the customers to buy the goods.

(2) The objectives of advertisements are to reach maximum customers, attract them to the products and make them buy the products.

(3) Products loose their credibility and trust of customers when the manufacturers and sellers indulge in unfair practices.

(4) Giving incomplete or incorrect information, exaggerated statements and pointing out the shortcomings of the other products result in lost of trust.

(5) Therefore, it is necessary that the manufacturers follow fair (ethical) practices in advertising, follow rules and regulation laid down in Consumer Protection Act.

(6) It is also important that the consumer identifies his needs and buys goods at reasonable rates.

QUESTIONS AND ANSWERS

***Q. 1 Classify the trade taking place between following regions :**

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

(1) Maharashtra and Punjab (2) India and Japan

(3) Lasalgaon and Pune (4) China and Canada

(5) India and European Union

Ans.

Internal trade	External trade
(1) Maharashtra and Punjab	(1) India and Japan
(2) Lasalgaon and Pune	(2) China and Canada
	(3) India and European Union

Q. 2 Name / list the following :** ***(1 Mark each)

(1) Write the correct word – Import or Export – for the following :

Ans.

Statement	Answer
(A) India buys crude oil from the Middle-East Asian countries.	Import
(B) Wheat is sent to Asian countries from Canada.	Export
(C) Japan sends machine parts to APEC countries.	Export

(2) Identify and write the type of trade.

Ans.

Statement	Type of trade
(1) Srushti brought sugar from the grocery shop.	Retail trade
(2) The traders from Surat bought cotton from the farmers of Maharashtra.	Domestic trade
(3) Sameer has exported pomegranates from his farms to Australia.	International trade
(4) Sadabhau bought 10 sacks of wheat and 5 sacks of rice from Market Yard for selling in his own shop.	Wholesale trade

Q. 3 Correct and rewrite the wrong statements :

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

***(1) India is a self-sufficient country.**

Ans. India **is not** a self-sufficient country.

***(2) The place where there is excess production does not have demand for those products.**

Ans. The place where there is excess production does **supply goods to other places**.

***(3) International trade processes are easier than local trade.**

Ans. International trade processes are relatively **difficult than local trade**.

***(4) SAARC works towards economic development and enhancing the social and cultural harmony among the South-East Asian countries.**

Ans. SAARC works towards economic development and enhancing the social and cultural harmony among the **South Asian countries**.

(5) The headquarters of the BRICS is in New Delhi.

Ans. The headquarters of the BRICS is in **Shanghai**.

Q. 4 Answer the following questions in one sentence each : *(1 Mark each)*

(1) What is trade?

Ans. Trade is an economic activity of buying and selling of goods.

(2) What is done with the excess production ?

Ans. The regions having excess production of commodities supply the same to the regions having deficit or according to demand.

(3) Which trade practice existed during the ancient and the medieval periods?

Ans. Barter system of trade existed during the ancient and the medieval periods.

(4) Why was the use of currency in trade started?

Ans. The use of currency in trade was started because difficulties related to estimating the proper price of commodity were faced in trade.

(5) What is invisible trade ?

Ans. The exchange of services is called invisible trade.

(6) How are the types of trade determined ?

Ans. The types of trade are determined on the basis of (i) quantity of goods and (ii) the extent of trade region.

(7) Name the types of trade on the basis of the extent of trade region.

Ans. (i) Domestic trade and (ii) International trade are the two types of trade on the basis of the extent of trade region.

(8) What is the number of the member-states of the World Trade Organisation ?

Ans. 164 states are the members of the World Trade Organisation.

(9) What is the number of the member-states of the European Union ?

Ans. 28 states are members of the European Union. *(With the UK exiting the EU (Brexit), the number has reduced to 27 in 2017.)*

(10) Where is the headquarters of the OPEC situated ?

Ans. The headquarters of the Oil Producing and Exporting Countries (OPEC) is situated in Austria's capital city of Vienna.

(11) Where is the headquarters of the SAARC situated ?

Ans. The headquarters of the South Asian Association for Regional Cooperation (SAARC) is situated in Nepal's capital city of Kathmandu.

(12) What is the number of the member-states of SAARC ?

Ans. The number members of the SAARC is the 8 countries of the South Asia region.

(13) Where is the headquarters of the APEC situated ?

Ans. The headquarters of Asia-Pacific Economic Cooperation (APEC) is situated at Singapore.

(14) Write the names of the member-states of BRICS.

Ans. Brazil, Russia, India, China and South Africa are the members of the BRICS.

Q. 5 Differentiate between the following : *(2 Marks each)*

(1) What is the difference between the OPEC and APEC in terms of their functions?

Ans.

OPEC	APEC
1. OPEC is the organisation of oil producing and exporting countries.	1. APEC is the regional organisation of the countries in the Asia-Pacific region.
2. It keeps control over international trade in crude oil.	2. It promotes free trade and economic cooperation among the member countries.
3. It keeps control on the production by the member countries and the rates of crude oil.	3. It encourages regional and technological cooperation among the member countries.
4. It coordinates the activity and maintains consensus in export of crude oil.	4. It coordinates technical and economic cooperation among the member-states.

(2) State the difference between import trade and export trade.

Ans.

Import Trade	Export Trade
1. Import is procurement of those goods and services which are scarce in the country.	1. Export is sale of the excess goods and services to the other countries which need and demand these.
2. When the value of the imported goods is more than the value of the exported goods, there is adverse balance of trade.	2. When the value of the exported goods is more than the value of the imported goods there is favourable balance of trade.
3. Adverse balance of trade has negative impact on the economy of the country	3. Favourable balance of trade has positive impact on the economy of the country.

Q. 6 Short Notes : *(2 Marks each)*

(1) The need/importance of trade.

Ans. (1) Trade is an important economic activity.

(2) The economic life of people is interdependent.

(3) No region or country is self-sufficient. Trade between two regions or countries is necessary to fulfil the needs of the people.

(4) The place where goods are in excess, they supply their goods to regions facing deficit.

(5) Thus, trade sustains the economy not only of one country but the world at large.

(2) Wholesale Trade.

Ans. (1) In the wholesale trade, the traders buy goods on a large scale from industrialists, farmers, etc. For example, the orchard owners of mangoes or oranges sell their entire production to wholesale traders.

(2) The wholesalers, in turn, sell these commodities to the retail traders.

(3) What is Retail Trade?

Ans. (1) The small traders in cities and villages are in direct contact with the customers.

(2) They buy goods from the wholesellers and sell the goods in local market to their customers.

(3) The quantity of trade is small.

(4) For example, the shopkeepers selling foodgrains, vegetable vendors in markets.

(4) Write about Domestic/Internal Trade.

Ans. (1) The domestic or internal trade takes place between different regions within the same country.

(2) The size of the country, diversity, distribution and availability of natural resources affect the internal trade within the country.

(3) The size of population, transport and communication services, the living standard of the people, marketing system lead to large-scale internal trade.

(4) In India, factors like diversity in geographical conditions and high population also affect the domestic trade.

(5) Development of a country depends on the extent of the domestic trade.

(6) There is a positive relation between economic growth and trade.

(5) Write about the External/International Trade.

Ans. (1) External or International Trade means the exchange of goods and services of one country with other countries.

(2) Some countries produce specific products in excess, for example, wheat production in the USA and Canada. These products are sold to countries having demand for those goods.

(3) Export and import are the basic processes in international trade.

(4) When a country buys those goods and services which are scarce in their own country from another country, it is known as import.

(5) When a country produces excess goods or services than required, it sells these to countries which have a demand for it. This trade is called export.

(6) The need for the international trade organisation.

Ans. (1) The interdependence among the countries in the world leads to international trade.

(2) International trade is complex due to factors like the economy of the country, government policies, markets, laws, judicial system, currency, language, etc. which differ from country to country.

(3) The political relations between the two countries also influences the trade between them.

(4) To overcome the difficulties in the trade between countries, international economic and trade organisations were established.

(5) These organisations work towards the facilitation and growth of international trade.

(7) The European Union (EU).

Ans. (1) European Common Market was established in 1964 and it gradually evolved into European Union of 28 countries in Europe. *[with the 'Brexit', i.e. exit of Britain, the number of countries is reduced to 27]*

(2) The EU has established an integrated European market amongst the European nations.

(3) The tariffs on trade among the European countries was abolished.

(4) There is free flow of goods, services and capital in Europe.

(5) Euro is the common currency of EU.

(6) The headquarters of EU is at Brussels in Belgium.

(8) The SAARC.

Ans. (1) South Asian Association for Regional Cooperation (SAARC) is the regional organisation of the countries in the South Asia.

(2) India is a member of the SAARC.

(3) The headquarters of SAARC is at Kathmandu in Nepal.

(4) Its objectives are as follows :

(i) To find satisfactory solutions to the common problems faced by countries in South Asia.

(ii) To increase social welfare, raise the living standard and increase regional cooperation among member states.

(iii) To remove unrest in South Asia.

(9) The ASEAN.

Ans. (1) Association of South East Asian Nations (ASEAN) is a regional organisation of the countries in the South-East Asia.

(2) The headquarters of the ASEAN is at Jakarta in Indonesia.

(3) Its objectives are as follows :

(i) To expand social and cultural harmony, along with economic growth in the South-East Asia.

(ii) To promote peace in the region.

(iii) To promote trade growth among the member states by tax waivers.

(10) The role of marketing in the growth of trade.

Ans. (1) Modern industrial society, globalization and availability of abundant choices/alternatives of the products is the nature of today's business world.

(2) In this context, the role of marketing for the growth of trade becomes important.

(3) One can increase business systematically through marketing.

(4) The production can be distributed all over the world through marketing.

(5) The product can reach a large number of consumers and thereby sale of the product also increases.

(6) Defective products can also be recalled from the market.

(7) Thus, marketing is a vital part of trading systems in the present times.

(11) The objectives of BRICS.

Ans. (1) Brazil, Russia, India, China and South Africa have formed BRICS for mutual cooperation.

(2) The objectives of the BRICS are as follows :

(i) To make funds available for growth of economies of members

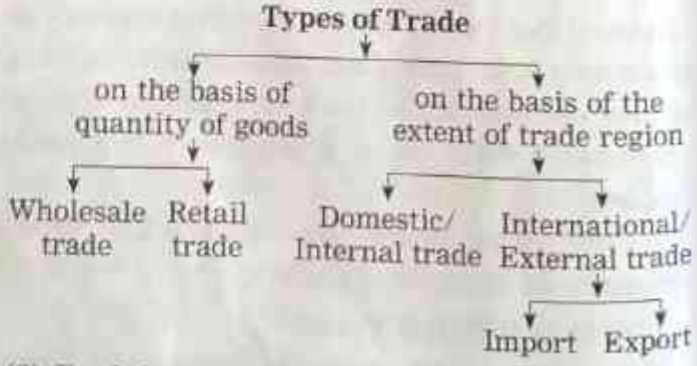
(ii) To enhance mutual economic cooperation

(iii) To strengthen economic security.

Q. 7 Explain the following : *(4 Marks each)*

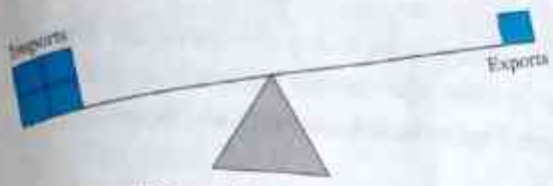
***(1) Prepare a flowchart showing the types of trade.**

Ans.



(2) Explain graphically the difference in types of balances of trade.

Ans. (1) When the value of imports is more than the value of exports, it is called 'Unfavourable Balance of Trade.'

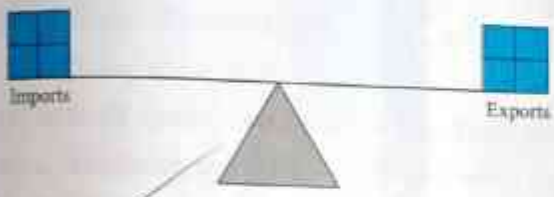


Unfavourable Balance of Trade

(2) When the value of exports is more than the value of imports, it is called 'Favourable Balance of Trade'.

Favourable Balance of Trade

(3) When the value of exports and imports is almost the same, it is called 'Balanced Balance of Trade'.



Balanced Balance of Trade

*** (3) State the objectives of the WTO.**

Ans. The objectives of the World Trade Organisation (WTO) are as follows :

(1) To provide platform for negotiations in international trade.

(2) To handle the difficulties related to trade.

(3) To monitor the trade policies of member states.

(4) To provide technological assistance and training to developing countries.

*** (4) Write the functions of the important trade organisations in Asia.**

Ans. Association of South-East Asian Nations (ASEAN) is an important trade organisation in Asia. Its functions are as follows :

(1) To expand social and cultural harmony along with economic growth in South-East Asia.

(2) To promote regional peace.

(3) To promote tax waivers for trade growth in member states.

*** (5) What is the importance of marketing from farmers 'point of view' ?**

Ans. (1) In the traditional marketing, the farmers used to sell their products in the local market at whatever price available. Since the fruits and vegetables are perishable goods, the farmers used to incur losses.

(2) However, the progressive farmers have acquired skills in marketing. They are aware of the trends in market. They produce foodgrains and fruits as per the international standards.

(3) Now, they undertake grading and packaging of their products. The presentation of any product has become indispensable now.

(4) They advertise the quality of their products and keep the same for sale, along with samples, in the mall.

(5) They contact the super markets and exporters through internet.

(6) As a result, their products are sold at higher price in the malls. They also fetch good price from the exports.

(7) Thus marketing is as important as cultivation of crops. By following modern marketing techniques, the income of the farmers will increase and that will improve their standard of living.

(6) Why is it important to observe ethical norms in advertising ?

Ans. (1) The manufacturers/traders undertake advertisement of their products as a part of their marketing strategy.

(2) However, the misleading advertisements deceive the consumers and some products may cause harm to the consumers.

(3) It is desirable that the manufacturers/traders should not indulge in unfair trade practices like giving incorrect information, fradulent means or making exaggerated statements, pointing out shortcomings of the competitors.

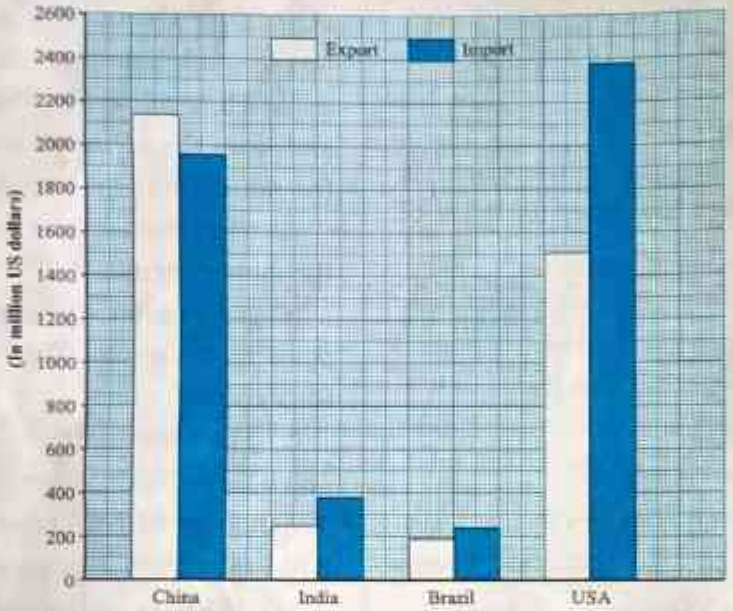
(4) Unethical advertisements, in the long run, leads to the loss of credibility and confidence of the consumers in the products.

(5) Under Consumer Protection Act, the consumers have a right to complain and seek redressal.

Q. 8 In the following table, export-import of some countries in the year 2014-15 is given in million U.S. dollars. Make a compound bar graph of the given statistical information. Read the bar diagram carefully and comment upon the balance of payments of the respective countries.

Country	Export	Import
China	2143	1960
India	272	380
Brazil	190	241
USA	1510	2380

Ans.



Explanations :

Country	Export	Import	Difference	Traders Magnitude
China	2143	1960	+ 183	4103
India	272	380	– 108	652
Brazil	190	241	– 051	431
USA	1510	2380	– 870	3890

Observations:

(1) China has favourable balance of trade.

(2) India, Brazil and the USA have unfavourable balance of trade.

(3) The volume of international trade of China and the USA is maximum.

(4) International trade of India and Brazil is insignificant.

(5) International trade is dominated by China and the USA.

ACTIVITY BASED/OPEN ENDED QUESTIONS

Q. 1. Can you tell ? (Textbook page 68)

- **Trade involves selling and buying of goods. But do you know that trade can also take place without goods?**

(1) When we travel by a vehicle, we pay the fare. Do we get any commodity from it?

Ans. We pay the fare when we travel in a vehicle. We do not get any commodity for it. The fare is paid in return of the services.

(2) We pay fees to the lawyers/doctors. Do we get any commodity from them?

Ans. We pay fees to the lawyers/doctors in lieu of the advice given by them.

(3) Why do you pay for the ticket of a movie and go inside the theatre ?

Ans. I pay for the ticket of movie and go inside the theatre for entertainment.

(4) Why do you pay for getting a hair cut ?

Ans. I pay for getting a hair cut because the barber is rendering a service to me.

Q. 2. Use your brain Power ! (Textbook page 70)

- **Suppose you are a trader and you want to sell your product in other states of the country and also in other parts of the world.**

(1) Which of these is an easier way of doing trade?

Ans. Doing trade within the country is easy.

(2) Which trade can bring some limitations?

Ans. International trade can bring some limitations.

(3) Look for reasons behind them.

Ans. Inter-state relations, different laws, different currencies, different rates of tariff are the factors that bring limitations on international trade.

Q. 3. Think about it. (Textbook page 72)

- **What will happen if there is only one currency used in the whole world ?**

Ans. (1) 'Euro' is the common currency in the European Union.

(2) It has given boost to trade in Europe.

(3) One currency used in the whole world will increase international trade.

Q. 4. Can you tell? (Textbook page 72)

(1) Why did Dhondiba's commodities start getting higher price ?

Ans. An appropriate presentation of any commodity is indispensable. The price of the commodity is determined by its quality, its grading and how it is presented before the customer. Dhondiba's son recognised it and made necessary changes. Therefore, Dhondiba's commodities started getting higher price.

(2) What did Dhondiba's son do for that?

Ans. Dhondiba's son adopted modern marketing practices.

(3) What measures would you suggest to the farmers near you so that their agricultural products fetch a good price?

Ans. To follow the example of Dhondiba.

ACTIVITIES

(1) Make friends with map.

Find out the names of the member-states of the following organisations with the help of internet. Show these member nations on the outline map using different colour for each organisation.

- OPEC member countries.
- SAARC member countries.

(2) Try this. (Textbook page 73)

A list of few goods you regularly use at home is given here. Write the name of the product, the manufacturer's name and the source of information in front of it.

Sr. No.	Goods that you use	Name of the Company	Source of Information
1.	Toothpaste/powder		
2.	Tea or coffee		
3.	Bathing soap		
4.	Hair oil		
5.	Biscuits		

***(3) Carry out the following activity with the help and guidance of teachers:**

Prepare a good advertisement for any product. Make sure your advertisement gets maximum appreciation from the class.

(4) Give it a try :

- Obtain information regarding the bilateral trade between India and Japan for any financial year and the value of the export and import of major goods. Write two paragraphs on it.

(5) Try this :

Obtain the following information :

- Make a list of commodities which you use daily
- Who uses these commodities?
- Write the source of the supplies of these commodities.
- From where do you buy these commodities?
- What do you call the act of buying and selling?
- What does the shopkeeper take in lieu of the commodity?
- From where do these commodities come to the market?
- From where have you bought them and what is their main source?
- Obtain this information and write it against the commodities in the list. Hold a discussion in the class about the obtained information.

(6) Find out! :

- You get products from other places. Similarly, find out where the special products/ items made in your village/city are sent?

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

10 URBANISATION

Points to be studied

- **Urbanisation** : Nature, statistics, causes and effects.

SUMMARY

10.1. Urbanisation :

(1) Agriculture is the principal economic activity in India. However, industrialisation in rural areas is taking place in the recent times. Thereby, the nature of the rural economy and society is undergoing change.

(2) With development taking place in rural areas, many new occupations have started in the villages.

(3) Nagar Panchayats and Nagar Parishads are taking the place of the Gram Panchayats.

(4) They are providing better civic amenities to the people in the villages. Thus, the process of transforming villages into towns is taking place.

(5) The process of urbanisation is gradually taking place in India.

10.2 Factors contributing to Urbanisation/ Causes of Urbanisation :

(1) **Industrialisation** : The development and concentration of industries in a region contributes to urbanisation. The people in the surrounding areas are attracted to such places in the hope of getting employment. Starting of textile mills in a large number was responsible for the rapid urbanisation of Mumbai in the 19th century.

(2) **Trade** : A place in a region is favourable in terms of transport, loading-unloading and storage (activities). This leads to development of trade and related services. Nagpur is centrally located in India that led to its rapid urbanisation.

(3) **Mechanisation and Technology** : The use of technology and mechanisation has increased in agriculture. As a result, the manpower employed in agriculture became devoid of agricultural work. This working class came to cities in search of work, leading to increase in urban population.

(4) **Transport and Communication** : Urbanisation of small rural settlements takes place rapidly where transport facilities like roads and railways develop. Many villages like Savarde (District Ratnagiri), in proximity with Konkan railway, have started urbanising. Rapid growth of Bhusawal (District Jalgaon) happened due to convergence of important railway routes.

(5) **Migration** : Migration occurs from rural to rural areas, rural to urban areas or urban to urban areas. However, the attraction of higher standards of living led to migration to cities like Mumbai and Pune.

10.3 Effects of Urbanisation : The character of a region changes due to urbanisation. Changes in use of land from agriculture to industries and residential use takes place due to urbanisation.

(a) Advantages of Urbanisation :

(1) **Social harmony** : Due to increase in secondary, tertiary and quaternary occupations, economic activities increase. People from different parts of the country live together in cities. This leads to exchange of cultural and social customs and traditions. It creates social harmony.

(2) **Modernisation** : Exchange of wisdom, skills and knowledge between people from different areas takes place in cities. The cities are the first to get advantage of updated knowledge and literature. Urban areas get advantage of new ideas, updated technologies and technical facilities. The standard of living of people improves.

(3) **Amenities and Facilities** : Amenities and facilities like transportation, communication, educational and medical develop in the urban areas. Travelling becomes comfortable due to good transport facilities. Market, trade and freight transport develop due to transport facilities. Many students come to urban areas due to availability of higher education. Many patients and their families come to urban areas to avail of well developed medical facilities.

(b) **Problems of Urbanisation** :

(1) **Slums** : The housing facilities do not increase in the same proportion as the population. Most migrants are poor and cannot afford housing in the cities. They build temporary and semi-structured houses, which are mostly illegal, in open spaces. They do not get basic facilities from the local government *(wrongly given as self-government)*. The density of houses is very high. These slums keep on increasing uncontrollably and give rise to social and many health-related issues.

(2) **Traffic Jams** : People living in the outskirts and suburbs commute to the city centre for jobs, business, trade and education. The number of private vehicles increases as public transport system is not sufficient. The increase in the number of vehicles leads to increase in travel time and traffic jams.

(3) **Pollution** : The adverse effects of air pollution, water pollution and noise pollution are visible in cities. Increase in infrastructure development, paucity of facilities and breaking of laws add to the pollution.

(4) **Crime** : Not all migrants find employment in cities. Some of them look for means to earn money by illegal ways, leading to increase in crime rate. Thefts, burglaries, scuffles and murder are the crimes in the cities. This creates serious law and order problems, bringing pressure on the police and judicial system.

(5) **Other problems** : Enormous increase in land price, conflicts and tensions *(wrongly given as struggles)* between various groups that threaten, social harmony in the cities.

QUESTIONS AND ANSWERS

Q. 1 Select the appropriate alternative and complete the statements : *(1 Mark each)*

(1) Development of ..... city took place as it was a centre of higher education.
(Pune, Mumbai, Nagpur)

(2) ..... is centrally located in India.
(Delhi, Nagpur, Mumbai)

(3) ..... grew rapidly as a large number of textile mills were started.
(Pune, Mumbai, Nagpur)

(4) Convergence of important rail routes through ..... led to its rapid growth.
(Savarde, Amrawati, Bhusawal)

(5) Many villages like ..... have started urbanising due to proximity with Konkan Railway. *(Ratnagiri, Savarde, Sawantwadi)*

(6) When rural development takes place, ... paves way for the Municipal Council.
(Gram Panchayat, Panchayat Samiti, Zilla Parishad)

(7) An area having more than .....% male working population in non-agricultural occupation is regarded as urban. *(50, 60, 75)*

(8) .....% population of India, as per census of 2011, lived in the urban areas.
(25.72, 28.06, 37.07)

(9) The number of urban places, as per census of 2011, was ..... *(7,935, 9,735, 7395)*

(10) Many villages which were originally Koliwada became part of ..... metropolitan area.
(Pune, Mumbai, Nagpur)

Ans. (1) Development of Pune city took place as it was a centre of higher education.

(2) Nagpur is centrally located in India.

(3) Mumbai grew rapidly as a large number of textile mills were started.

(4) Convergence of important rail routes through Bhusawal led to its rapid growth.

(5) Many villages like Savarde have started urbanising due to proximity with Konkan Railway.

(6) When rural development takes place, Gram Panchayat paves way for the Municipal Council.

(7) An area having more than 75% male working population in non-agricultural occupation is regarded as urban.

(8) 37.07% population of India, as per census of 2011, lived in the urban area.

(9) The number of urban places, as per census of 2011, was 7,935.

(10) Many villages which were originally Koliwada became part of Mumbai metropolitan area.

Q. 2 Match the correct pairs :** ***(1 Mark each)

Group A	Group B
(1) Technological development and mechanisation	(A) Urban areas
(2) Permanently staying away from original place	(B) Lack of planning
(3) 75% male population engaged in non-agricultural occupations	(C) Migration
(4) The problems of solid waste	(D) Urbanisation
	(E) Increased crimes
	(F) Social harmony

Ans. (1) Technological development and mechanization – Urbanisation

(2) Permanently staying away from your original place – Migration

(3) 75% male population engaged in non-agricultural occupation – Urban areas

(4) The problems of solid waste – Lack of planning.

Q. 3 Complete the table :** ***(Note : The answer is given directly.)

Note : This question type is not included in the Revised Question Paper Pattern. However, being a textual question type, it is included here with the answers.

Process of urbanisation	Effects
Emergence of slums	Illegal settlements Insufficient facilities
Migration	Increase in population because of attraction of good lifestyle. Can be short-term or long-term.
Pollution	**Adverse effect on urban life**
Industrialisation	Employment opportunities were generated. Increase in amenities and facilities.
Change from rural to urban	**Formation of Municipal Council. Development of occupations, Better civic amenities.**

Q. 4 Write Short Notes / State the Importance / Advantages of the following :** ***(2 Marks each)

(1) Technology and Mechanisation.

Ans. (1) Technology and mechanisation increases industrial production, creates employment and is useful for urbanisation.

(2) Mechanisation and use of technology increases agricultural production.

(3) The surplus manpower engaged in agriculture became devoid of employment.

(4) So the working class in the rural areas migrated to cities in the search of employment.

(5) This migration of population has reduced the disguised unemployment in the agricultural sector.

(2) Trade.

Ans. (1) A place in a region that has facilities for transport, loading and unloading of goods and storage facilities develops into a trade centre.

(2) This leads to development of trade and related services, like business complexes, banks, credit societies, godowns, cold storages, houses, etc.

(3) Nagpur is centrally located in India. Urbanisation started increasing as this location facilitated trade.

(3) Industrialisation.

Ans. (1) Industrialisation is catalyst of urbanisation.

(2) Development and concentration of industries in a region contributes to urbanisation.

(3) Increase in industries leads to increase in the employment opportunities for the people in the surrounding areas.

(4) This migration of population increases the speed of urbanisation.

(5) Mumbai grew rapidly because textile mills started on a large scale in this place.

(6) Many villages, which were originally fishing villages *(koliwadas)*, became part of Mumbai metropolitan area due to industrialisation and urbanisation.

(4) Amenities in the urban area.

Ans. (1) Urbanisation leads to development of a number of amenities and facilities in urban areas.

(2) Transportation, communication, educational and medical facilities, fire brigade, etc. are available in cities.

(3) Good public transport facilities make travel easier. It facilitates freight transport, development of markets, trade, etc.

(4) Facilities of higher education attract many students from the rural area to urban area. For example, Pune.

(5) Medical facilities are also well developed in urban areas. To avail of these facilities, many patients and their family members come from different parts of India to cities like Mumbai.

(5) Social harmony in cities :

Ans. (1) There is an increase in secondary, tertiary and quaternary occupations with urbanisation.

(2) This leads to increase in economic activities and people from all parts of the country come to cities.

(3) Cultural and social customs and traditions are exchanged as people from different parts live together in the cities. This creates social harmony.

***(6) Transportation System and Traffic Jams :**

Ans. (1) As cities grow, people start living in the outskirts and suburbs of the city.

(2) People commute to the centre of the city for businesses and industries, trade, jobs, education, etc.

(3) As public transport system is insufficient, the number of private vehicles increases.

(4) This leads to an increase in traffic jams and increase in the travelling time.

Their correlationship is shown in the picture given below :

***(7) Industrialisation and Air Pollution :**

Ans. (1) Industrialisation leads to development and concentration of industries in and around cities like Mumbai.

(2) Industries use different types of energy and machines to undertake production.

(3) Many industries let off smoke in the air and cause air pollution.

(4) Increase in the development of city, paucity of facilities and breaking of law, makes pollution a big problem.

(5) Their correlationship is shown in the picture given below :

***(8) Migration and Slums :**

Ans. (1) Urbanisation has led to proliferation of slums in the cities.

(2) Housing facilities do not increase in the same proportion as the population.

(3) Moreover, the cost of houses in the cities is prohibitive. The poor migrants cannot afford the housing in cities.

(4) As they are economically weak, they build temporary and illegal houses in open spaces. This type of housing is known as slums.

(5) The density of houses is high, roads are narrow are they lack basic facilities.

(6) The correlationship between migration and slums is shown in the picture given below :

***(9) Lack of Amenities and Increase in Crimes :**

Ans. (1) The migrant population lives in slums.

(2) They do not get basic civic amenities from the local government.

(3) They are forced to live in unhygienic conditions. This gives rise to many health-related and social problems.

(4) Many of the migrants may not get employment.

(5) Some of them take to illegal ways to earn money and undertake criminal activities.

(10) Industrialisation and Water Pollutions :

Ans. (1) The chemicals and paints industries use a lot of water in their production work.

(2) Sugar industry, too, uses water on a large scale.

(3) These industries discharge polluted water in the sources of water without processing by means of affluent water treatment plant.

Thus, some industries are responsible for water pollution.

Their correlationship has been shown in the picture given below :

(11) Public Celebration of Festivals and Noise Pollution :

Ans. (1) People of India celebrate many festivals round the year.

(2) Local organisations publicly celebrate these festivals. Their loud speakers blare throughout the day.

(3) They burst noise-making fire-crakers and have DJ music during the festivals.

(4) In this way, public celebration of festivals is responsible for noise pollution. Their correlationship is shown in the picture given below :

Q. 5 Explain the following in brief : ***(4 Marks each)***

***(1) The slums in the cities are increasing. Suggest measures.**

Ans. (1) The migration of people from villages and less-developed regions is the cause of increasing slums.

(2) The ideal solution to these problems is to stop migration by making available employment opportunities at the local level. Thus, the people will not migrate in search of employment.

(3) Slum Rehabilitation Authority (SRA) and the other government agencies should expeditiously complete the housing schemes for the low income group.

(4) The nationlised and co-operative banks should make available housing loans to middle class to enable them to purchase their house.

***(2) A lot of time is wasted due to increasing traffic jams. Suggest measures.**

Ans. (1) People living in the suburban and outer areas of the city are required to commute for different reasons.

(2) Many travel by private vehicles as public transport is inadequate.

(3) A huge number of public and private vehicles congest roads and cause traffic jams.

(4) This problem could be solved by improving public transport system and car pooling system.

(5) The traffic control machinery should be made more effective.

***(3) The problem of law and order in the urban areas is serious. Suggest measures.**

Ans. (1) When people do not get employment, they resort to illegal ways to earn money. This creates the problem of law and order.

(2) Many crimes are due to poverty and unemployment. Poverty alleviation and employment generation programmes should be given priority.

(3) The semi-literate/educated unemployed persons should be given skill-training and be prepared for self-employment.

(4) The gangs of criminals should be destroyed as they induce the unemployed persons to indulge in criminal activities.

(5) The police and the Judicial system should be strengthened to wipe out criminals.

***(4) The problem of pollution became grave due to urbanisation. Suggest measures.**

Ans. (1) Increasing industrialisation, very large number of vehicles and irresponsible behaviour of people cause pollution.

(2) To check pollution, Pollution Control Acts should be rigorously enforced.

(3) Strict action should be taken against polluting industrial units.

(4) Installation and regular use of affluent water treatment plant should be made compulsory.

***(5) Urban areas have many health problems. Suggest measures.**

Ans. (1) Air pollution, water pollution and noise pollution are the realities/problems of the urban areas.

(2) The polluted environment is the cause of many health problems and it needs to be controlled.

(3) The public health system needs to be strengthened.

(4) People need to be educated in personal and public hygiene.

***(6) The growth of the cities takes place in a specific manner.**

Ans. (1) With the emphasis on rural development, rural industrialisation is given priority.

(2) Many factories, mills, energy plants and multi-purpose projects have been started in the rural areas.

(3) People from the surrounding regions come to work and thereby the population of the village increases.

(4) To fulfill their needs medical facilities, food services, hospitals, recreation services also develop.

(5) Consequently, the extent of the village grows and the form of earlier village changes.

(6) The place of Gram Panchayat is taken by the Municipal Council or Municipal Corporation.

(7) These urban bodies provide better civil amenities, undertake town planning and develop recreation facilities, parks and places of tourist interest.

In this manner, a village transforms into a town or city.

***(7) Write about a planned city of your imagination.**

Ans. (1) In planned cities, the residential area, the commercial area and the area providing services like education and health are clearly demarcated.

(2) Keeping in view the future growth of the city, various civic amenities are also planned.

(3) The recent concept of 'Smart City' proposes planned development of the existing and new cities.

(4) In the city of my dream, the needs of housing, recreation, health, education and public transport will be met.

(5) Chandigarh, New Delhi and Navi Mumbai are similar to a planned city of my imagination.

***(8) How is industrialisation a cause of urbanisation ?**

Ans. For the answer refer Q. 4 (3).

***(9) Write about pollution as a problem.**

Ans. (1) The term pollution is derived from the word 'to pollute' which means contamination.

(2) To pollute means to cause damage to the ecological balance by adding pollutants.

(3) These pollutants get into air, water and land. Thereby, they cause air pollution, water pollution and land pollution.

(4) Pollution is a menace as it causes many health hazards.

(5) The quantum of pollution is much higher in the urban area. Therefore, it is mainly regarded as an urban problem.

(6) Many laws have been enacted and enforced to control pollution. Even at the international level many protocols and treaties have been made to control pollution.

(7) At the personal level, we should ensure that we do not cause pollution and should actively participate in the activities like Swatcha Bharat Abhiyan.

***(10) Write about 'Swatcha Bharat Abhiyan'.**

Ans. (1) 'Swatcha Bharat Abhiyan' is an ambitious programme launched by the Government of India in 2016.

(2) एक कदम स्वच्छता की ओर is the objective of this programme.

(3) Its symbol is given below :

एक कदम स्वच्छता की ओर

(4) It proposes to stop the prevailing practice of going for defecating in the open area by providing public toilets.

(5) It encourage the families to have private toilet i.e. in the house.

(6) For this purpose, special grant is made available to the Gram Panchayat.

(7) The funds for this programme are raised by 'Swatcha Bharat Surcharge.'

(11) Explain the concept of 'Urbanisation.'

Ans. (1) According to Marvin E. Olsen, "Urbanisation consist of an inward flow of large number of people from scattered rural areas to urban communities."

(2) Andorson further elaborates that "urbanisation is a two-way process. It involves not only movement from villages to cities and change from agricultural occupation to business, trade, service and profession, but also involves change in migrants' attitudes, beliefs, values and behavioural patterns."

(3) Urbanisation is regarded as a process of social change from agrarian society to industrial society.

(4) The process of urbanisation gathered momentum after the Industrial Revolution.

(12) What is 'Urban area' ?

Ans. In 1961, the Census of India defined an 'urban area' on the basis of following criteria:

(1) More than 75% of the male working population should be engaged in non-agricultural occupations.

(2) The population of the settlement should be more than 5000.

(3) The population density of the settlement should be more than 400 persons per sq.km.

(13) Write about the process of urbanisation in your own words.

Ans. (1) Prior to independence, India was known as 'a land of villages'.

(2) The process of urbanisation started gradually after independence.

(3) The urban population increased to 17.79% in 1961. There were 2270 urban settlements.

(4) In fifty years thereafter, the urban population was 37.07% in 2011 and the number of urban settlements had increased to 7,935.

(5) This indicates that the process of urbanisation has gathered momentum.

(6) However, the rural population was 62.93% and indicates the urgency to provide urban amenities in the rural areas without any further delay.

(14) 'Urbanisation is a social process.' Explain.

Ans. (1) The people from the rural areas migrate to the cities.

(2) The values and the lifestyle of migrant population in the cities undergoes change.

(3) The illiterate villagers adopt the urban life style and educate their children.

(4) They acquire urban patterns of behaviour and modes of thought.

(5) It results in the decline of the joint family and the emergence of the nuclear family.

In this sense, urbanisation is a social process.

(15) Write about the problem of slums.

Ans. (1) The problem of slums is an outcome of the process of urbanisation.

(2) This problem arises because a large number of people in the rural areas migrate to the urban areas.

(3) But, facility of housing do not increase in the same proportion as the population.

(4) The migrant population is poor and cannot afford housing offered in the cities. Therefore, they build temporary, semi-structured and illegal houses on the open spaces. Their locality is referred to as the slums.

(5) The slums do not get the basic civic amenities from the local government.

(6) The density of the houses is very high and the roads are narrow.

(7) The slums grow uncontrollably due to more and more people from the rural areas migrating to cities.

(8) Slums are the breeding grounds of many health and social problems.

(16) What do you know about the 'Smart City' project ?

Ans. (1) The concept of 'Smart City' has emerged recently in the context of urban development.

(2) It proposes to update the developed cities by use of information technology.

(3) It proposes to smoothen handling of the public property and its utilisation.

(4) It proposes planned development of the city by collecting information about the different sections of the society.

(5) It proposes to strengthen traffic control and communication system.

(6) It also proposes to introduce immediate response system to tackle emergency situation, whenever it arises.

Q. 6 Answer the following questions in detail : *(4 Marks each)*

(1) Discuss the causes of urbanisation.

Ans. The main causes of urbanisation are as follows :

(1) Industrialisation : The development and concentration of industries in a region is a factor contributing towards urbanisation. Mumbai grew rapidly because textile mills started on a large scale.

(2) Trade : A place in the region is strategically located for transport, loading-unloading and storage of goods. This leads to development of trade related services. The city of Nagpur is centrally located in India. Urbanisation started increasing here because this location facilitated trade.

(3) Mechanisation and Technology : In recent times, mechanisation and application of modern technology has increased agriculture. As a result, the surplus manpower employed in agriculture became devoid of agricultural work. This working class came to cities to look for work. As a result, urban population started increasing.

(4) Transport and Communication : Urbanisation of small rural settlements takes place where transport facilities like roads and railways develop. Convergence of important rail routes through Bhusawal in Jalgaon district led to its rapid growth.

(5) Migration : Migration is a major factor affecting urbanisation. This migration can be short-term, long-term or permanent. Migration occurs from rural to rural area, rural to urban area or urban to urban areas. The attraction of higher standard of life has led to an increase in migratory population.

(2) Write the advantages of urbanisation.

Ans. The advantages of urbanisation are as follows :

(1) Social harmony : Cultural and social customs and traditions are exchanged as people from different parts of the country live together in the cities. This creates social harmony.

(2) Modernisation : In cities, exchange of ideas, knowledge and skills is easy. These areas receive updated knowledge. This results in modernisation.

(3) Better civic amenities and facilities : In urban areas facilities like transport, communication, educational and medical facilities, fire brigade, etc. are easily available.

(4) Transport : Good transport facilities make travel comfortable. It also facilitates the growth of freight transport, markets and trade.

(5) Education : The facilities of higher education are available in the urban areas.

(6) Medical services : Advanced medical services are available in the hospitals in the urban areas.

ACTIVITY BASED/OPEN ENDED QUESTIONS

***Q. 1. Suggest measures for the following problems of urbanisation shown in the following pictures :**

(1) This picture depicts the problem of air pollution. The remedies suggested are as follows :

(1) Shifting of industries causing large scale air pollution to the other places.

(2) Control over the number of public and private vehicles.

(3) Compulsory check of air pollution test of the vehicles.

(4) Make it obligatory to use low-lead petrol.

(5) Vigorous implementation of the prevention of Air Pollution Act.

(2) This picture depicts noise pollution. The remedies suggested are as follows :

(1) Restriction on the use of loud speakers.

(2) Fixing the time on the use of loud speakers.

(3) Ban on playing music at the places of celebration.

(4) Ban on the use of DJ during processions.

(3) This picture depicts the problems arising out of inadequate arrangement for the disposal of garbage. The remedies suggested are as follows :

(1) Segregation of wet and dry waste must be made compulsory.

(2) Involvement of the local NGOs in the management of disposal of waste.

(3) Encouragement to cooperative societies to dispose green/wet waste into compost fertilizers.

(4) Efficient planning and execution of the collection of dry/solid waste by the local government.

(4) This picture depicts the problem of water pollution. The suggestions to solve this problem are as follows :

(1) Make it compulsory for the factories to install and use affluent treatment plant.

(2) Strict punishment to the industries which dispose polluted water in the different sources of water.

(3) Ban on washing clothes, taking bath and washing animals at public water sources.

(4) Build public toilets to stop people from defecating in open near rivers.

Q. 2. (1) Can you tell ? (Textbook page 75)

[A dialogue between a farmer (Tatya) in a village and his son (Suresh) is given here. Read it carefully and hold a discussion on the following questions.]

(1) Why is Suresh thinking of going to the factory for work?

Ans. (1) He will get monthly salary.

(2) He will get additional money for overtime.

(3) He will get bonus at Diwali.

(2) What is Tatya worried about ?

Ans. Tatya is worried about what will happen to his fields if Suresh works in a factory.

(3) What changes does Suresh think will occur in the village?

Ans. (1) Roads will develop.

(2) Facilities like hospital, school, college and administrative offices will come in the village.

(3) People from outside will come in new huge buildings built in the village.

(4) Village will develop.

(4) What other changes do you think will occur in the village?

Ans. (1) The basic structure of village will change.

(2) People from the surrounding villages will come to work in the factories.

(3) Population of village will increase.

(4) The place of Gram Panchayat will be taken by the Municipal Council/Corporation.

(5) Municipal Council/Corporation will provide better civic amenities.

(6) Village will transform into a town/city.

(2) Think about it. (Textbook page 76)

Q. Which facilities are necessary to be developed in urban areas for fulfilling the needs of the population ?

Ans. (1) Town planning and preparation of perspective plan on the basis of estimated increase in the population.

(2) Demarcation of residential, commercial, industrial and services areas.

(3) Provision for drinking water and electricity, disposal of waste, public transport, hospitals and other.

(3) Think about it. (Textbook page 79)

(1) Why do the sources of water near the city get polluted ?

Ans. Disposal of dirty (polluted) water by the industries and day-to-day activities near the source of water cause water pollution.

(2) ... polluted water disposed off in the cities ?

Ans. (1) Sewage water is released in the sea after treatment. (2) Factories discharge water in rivers, nallas and seas.

(3) Is the water supplied to the cities good for health?

Ans. The cities have water purification plants. However, due to leakage, the water may get contaminated. Such contaminated water is not good for health as it results in many water-borne diseases.

(4) What are the adverse effects of water, air and noise pollution on health?

Ans. Water, air and noise pollution have adverse effect on health. People suffer from many chronic diseases due to water and air pollution. Respiratory and cardiac problems are caused by air pollution. The health-issues related to digestive system are caused by water pollution. Deafness is caused by noise pollution.

ACTIVITIES

*(1) Make a list of the large cities in India and show them on a map of India.

*(2) Visit a big city near your village and write the facilities and problems you come across with the help of your teacher.

(3) **Give it a try. (Textbook page 76)** : Give example of villages in your area turning into urban settlement. Find out the main reason of that rural area turning into an urban settlement.

(4) **Try this (Textbook page 76)** : Using the statistical information given on page 76 of the textbook, draw a line graph of the percentage of urban population using computer. Discuss in terms of urbanisation. After studying this graph, write the conclusions about urbanisation in our country from 1961-2011 in your own words.

(5) **Give it a try. (Textbook page 77)** : Make a list of cities in your district. Discuss which factors from above are responsible for their development. If possible, talk to migrated people in your surroundings or the nearest town and find out reasons of migration.

(6) Obtain information regarding development of settlements, villages, towns, etc. located on the main transport routes in your surroundings in the last five years.

(7) Look for the changes that have occurred in the technology and mechanisation of agriculture with the help of the internet. Write a short paragraph about the information you obtain.

(8) Obtain information about 'Smart City' scheme and prepare a project with the help of this information.

(9) **Give it a try** : Write five sentences on each picture given on **textbook page 79** after observing them.

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

11 TRANSPORT AND COMMUNICATION

Points to be studied

- **Transport** : Meaning, routes, means and importance.
- **Communication** : Meaning, means, importance and threats.

SUMMARY

11.1 Alternatives of transportation :

(1) If there are many ways and means of transport available, then we can think about those alternatives.

(2) There are roadways, railways, waterways, airways and pipelines by which transportation can be done.

11.2 Taking a right route and means of transportation :

(1) The factors like distance, physiography, market, climate, products, time, cost, duration, etc. are to be considered and accordingly one should take a right route and means of transportation.

(2) Taking a right route and means of transportation saves time and energy, lessens damage of goods, makes the journey comfortable and enables to charge affordable prices of goods.

11.3 Importance of transportation :

(1) Transportation is a basic infrastructure and its development is an indicator of the development of a particular region or country.

(2) Transportation enhances dynamicity of freight and passengers, helps industries and markets to develop, boosts economic growth, increases Per Capita Income (PCI) and Gross Domestic Product (GDP).

(3) The importance of transportation can be explained with the help of the following points : (i) Extending trade and network (ii) Rapid industrialization (iii) Availability of employment opportunities (iv) Regional connectivity (v) Utility of the sire (vi) Overcoming scarcity (deficit) (vii) Decreasing regional imbalance (viii) Tourism development.

11.4 Study of patterns of transport routes with help of the maps :

(1) While reading a map, we can easily study that the network of transport routes is dense at some places and sparse at others. We can also see that in some places, there are no transport routes at all.

(2) With the help of maps, we can study the effect of mountains, valleys, rivers, etc. on the patterns of transport routes.

11.5 Communication :

(1) Communication or exchange of information is an important process in today's era. Communication is a basic infrastructure.

(2) In today's modern age, man-made satellites are an important and effective means of communication.

(3) The exchange of messages through mobiles, watching programmes on television, getting updates of climatic conditions, etc. is possible simultaneously through man-made satellites.

(4) Satellite images obtained by remote sensing facilitate study of resources on earth's surface and helps in regional planning.

(5) In today's world, everyone needs to use communication system. The government of India is incentivising the use of online trading, payments, money transfer, etc. Many apps (applications) which can be used on mobile

phones have been developed for the same. For example, BHIM app, SBI Anywhere, etc. Nowadays, video calling is also available. Through video conferencing, we can talk to many people at a time.

(6) Besides facilities, means of communication have a few threats associated with them. Many crimes are happening through internet like website / email hacking, fraud, theft, attack, wars and terrorism. Therefore, one should take precautions while using social networks.

QUESTIONS AND ANSWERS

Q. 1 Complete the following statements by choosing the appropriate alternatives from those given in the brackets : *(1 Mark each)*

(1) ..... is the fastest route of transport.
(Roadways, Waterways, Airways)

(2) ..... are the most suitable route to transport perishable goods.
(Waterways, Airways, Railways)

(3) ..... is the cheapest mode of transport.
(Roadways, Airways, Waterways)

Ans.
(1) Airways is the fastest route of transport.
(2) Airways are the most suitable route to transport perishable goods.
(3) Waterways is the cheapest mode of transport.

Q. 2 Match the Columns : *(1 Mark each)*

'A'	'B'
(1) Green corridor	(a) Konkan Railway
(2) RoRo transport	(b) Artificial satellites
(3) Communication	(c) Transport of organs
(4) Gharapuri	(d) National Highway
	(e) Sea port
	(f) Postal service

Ans. (1) Green corridor – Transport of organs
(2) RoRo transport– Konkan Railway
(3) Communication – Artificial satellites
(4) Garapuri – Sea port.

Q. 3 Answer the following questions in one sentence each : *(1 Mark each)*

(1) For what reasons does a region become devoid of any transport route?

Ans. Due to mountains, valleys, rivers, reservoirs and undulating topography a region becomes devoid of any transport route.

(2) Why does a dense network of transportation develop in some regions?

Ans. Due to lower and medium elevation, plains, flat and regular topography, etc. a dense network of transportation develops in some region.

(3) What is meant by communication?

Ans. Communication is a process or system of exchanging information.

(4) What are the cyber crimes?

Ans. Offences (crimes) like website / email hacking, theft of information, economic frauds, wars, terrorism, etc. that are committed by using computers and internet are called 'cyber crimes'.

Q. 4 Name the following on the basis of the given information : *(1 Mark each)*

(1) Five cities with airways services in Maharashtra.

Ans. Five cities with airways services in Maharashtra : (1) Mumbai (2) Pune (3) Nashik (4) Nagpur (5) Nanded.

(2) Services available in post offices.

Ans. Services available in post offices : (1) Communication (2) Life insurance (3) Savings (4) Banking (5) Spread of information, etc.

(3) National Highways near your area.

Ans. NH-17.

Note : Students, here it is assumed that you stay in Sindhudurg district. The answer of the above question is to be written according to the place / area in which you stay.

(4) Ports along the coast of Maharashtra.

Ans. Ports along the coast of Maharashtra : (1) Dahanu (2) Vasai (3) Mumbai (4) Gharapuri (5) Shrivardhan (6) Harne (7) Jaigad (8) Ratnagiri (9) Malvan (10) Vengurle, etc.

Q. 5 Identifying the relation and match the columns making a chain :** ***(1 Mark each)

Group 'A'	Group 'B'	Group 'C'
Postal services	Roadways	Speed post
Shivneri	World network of connected computers	Exchange of information
Internet	Conventional means of communication	Comfortable journey
RoRo transport	Railways	Energy, time and labour saving

Ans. (1) Postal services – Conventional means of communication – Speed post.

(2) Shivneri – Roadways – Comfortable journey.

(3) Internet – World network of connected computers – Exchange of information.

(4) RoRo transport – Railways – Energy, time and labour saving.

Q. 6 Differentiate between the following :** ***(2 Marks each)

(1) Railways and Roadways.

Railways	Roadways
1. Compared to roadways, railways are comparatively speedy mode of transportation.	1. Compared to railways, roadways are comparatively slower mode of transportation.
2. Compared to roadways, the network of railways is less dense.	2. Compared to railways, the network of roadways is denser.
3. There is no problem of traffic jam on railways.	3. There is a problem of traffic jam on roadways.
4. Railways do not create a problem of air pollution.	4. Roadways create a problem of air pollution.
5. Compared to roadways, railways are cheaper.	5. Compared to railways, roadways are costlier.

(**Note :** *Any two points are expected in answer.*)

(2) Transportation and Communication.

Transportation	Communication
1. The service which enables the movement of goods and travelling of people from one place to another is called transportation.	1. The process or system which enables the exchange of information is called communication.
2. Rickshaw, truck, train, goods' train, boat, ships, helicopter, aeroplane, etc. are the means of transportation.	2. Newspapers, radio, television, mobile phone, internet, etc. are the means of communication.
3. The threats like traffic jams, accidents, noise pollution, air pollution are associated with transportation.	3. The threats like technical issues, cyber crimes, etc. are associated with communication.

(**Note :** *Any two points are expected in answer.*)

(3) Conventional means of communication and Modern means of communication.

Conventional means of communication	Modern means of communication
1. The means of communication that are being used since olden times are called conventional means of communication.	1. The means of communication that are used in modern times are called modern means of communication.

2. Letter, newspapers, radio, television are the conventional means of communication.	2. Mobile phone, internet, etc. are the modern means of communication.
3. Conventional means of communication may not facilitate the direct interaction between the sender and the receivers of information.	3. Modern means of communication facilitates the direct interaction between the sender and the receivers of information.

(**Note :** *Any two points are expected in answer.*)

Q. 7 Write short notes : ***(2 Marks each)***

(1) Importance of transportation.

Ans. (1) Transportation is a basic infrastructure. (2) Development of transportation infrastructure is an indicator of the development of a particular region or a country. (3) Transportation system enhances the dynamicity of freight and passengers in a region. (4) Transportation helps in the development of industries and markets. It also boosts the economic growth and helps to increase Per Capita Income (PCI) and Gross Domestic Product (GDP). (5) Importance of transportation can also be explained with the help of the following points : (i) Extending trade and network (ii) Rapid industrialization (iii) Availability of employment opportunities (iv) Regional connectivity (v) Utility of the sire (vi) Overcoming scarcity (deficit) (vii) Decreasing regional imbalance (viii) Tourism development.

(2) Study of patterns of transport routes with help of the maps.

Ans. (1) While reading a map, we can easily study the patterns of transport routes. (2) With the help of maps, we can see the distribution of transport routes in the form of dense network at some places and sparse networks at others. We can also see that in some places, there are no transport routes at all. (3) With the help of maps, we can study the effect of mountains, valleys, rivers, etc. on the patterns of transport routes.

(3) Importance of communication system.

Ans. (1) Communication or exchange of information is an important process in today's era. Communication is a basic infrastructure. (2) In today's modern age, man-made satellites are an important and effective means of communication. (3) The exchange of messages through mobiles, watching programmes on television, getting updates of climatic conditions, etc. is possible simultaneously through man-made satellites. (4) Satellite images obtained by remote sensing facilitate study of resources on earth's surface and helps in regional planning. (5) In this age of the internet and social media, everyone needs to use communication system. The government of India is incentivising the use of online trading, payments, money transfer, etc. Many apps (applications) which can be used on mobile phones have been developed for the same. For example, BHIM app, SBI Anywhere, etc. By using these communicational facilities, we can pay various bills, sell and buy goods and services and carry other such transactions. (6) Nowadays, communication is not just limited to talking on telephones or sending messages but also video calling is available now. Through video conferencing, we can talk to many people at a time.

(4) Threats associated with means of communication.

Ans. (1) Besides facilities, means of communication have a few threats associated with them. (2) Many crimes are happening through internet like website/email hacking, fraud, theft, attack, wars and terrorism. Possibilities of threats like theft of information, economic frauds, attacking important websites, etc. arise. (3) Therefore, one should take precautions while using social networks. (4) One should not reveal personal information before ensuring safety. (5) One should not put any sensitive information or personal information on social networking sites, blogs, etc.

Q. 8 Explain the following in brief : *(4 Marks each)*

***(1) 'Newspapers are used for communication'. Explain the statement.**

Ans. (1) The news related to education, culture, social issues, politics, economic events, etc. are published in newspapers. (2) Newspapers are a cheap means of communication. Through newspapers information gets spread to masses at a time. In this way, newspapers are used for communication.

***(2) Explain how T.V. is a cheap means of communication.**

Ans. (1) The bulletins, programs, serials, etc. related to entertainment, education, culture, social issues, politics, economic events, whether conditions, sports, etc. are broadcast on television. (2) Through television the information is exchanged to masses at a time with high speed. In this way, television is a cheap means of communication.

***(3) What types of communication can be done through mobiles?**

Ans. The following types of communication can be done through mobiles : (1) Verbal-oral type of communication by using direct calling system. (2) Verbal-written type of communication by using messaging system. (3) Verbal and Non-verbal communication by using various apps (applications). (4) Audio-visual communication by using video calling and video conferencing system.

(4) What are the benefits of taking the right route and means of transportation?

Ans. (1) The factors like distance, physiography, market, climate, products, time, cost, duration, etc. are to be considered and accordingly one should take right route and means of transportation. (2) The following are the benefits of taking the right route and means of communication : (i) Saving time and money (ii) Lessening the damage of goods (iii) Comfortable and safe journey (iv) Charging affordable prices for goods.

Q. 9 Study the following map and answer the following questions : *(1 Mark each)*

Make friends with maps! (Textbook page 84)

- **Observe the Figure 11.1 and Figure 11.2 given on page 84 of the textbook and answer the following questions :**

(1) In which region do you find a dense network of transport routes in a map?

Ans. A dense network of transport routes is found in the central region in a map.

(2) How is the physiography of the region with dense network?

Ans. The region with dense network is comparatively of lower elevations.

(3) Which region has a sparse network of transport routes?

Ans. Eastern region in a given map has a sparse network of transport routes.

(4) How is the physiography of this region?

Ans. The region with sparse network of transport routes is comparatively of lower and medium elevations.

(5) Look for the region lacking transport routes.

Ans. The western region in a given map is lacking transport routes.

(6) What kind of obstruction can you find there?

Ans. Sahyadri Mountain and its offshoots, extensive Shivsagar reservoir of the Koyna Dam and undulating topography are the obstruction found there.

ACTIVITY BASED/OPEN ENDED QUESTIONS

Q. 1. Let's Recall. (Textbook page 82) (Note : Answer is given directly.)

- **Complete the following table :**

Ans.

Transport route	Means of transport	Used for
Roadways	Rickshaw	Passengers
Roadways	Truck	Goods
Railways	Metro	Passengers
Waterways	Boat	Passengers
Airways	Helicopter	Passengers
Airways	Aeroplane	Passengers
Waterways	Submarine	Research and defense
Waterways	Ship	Goods
Roadways	Mules	Goods
Railways	Goods' train	Goods
Pipelines	Pipes	Liquid and gas

Q. 2. Can you tell? (Textbook page 82)

- **We have given some specific conditions. In this context, tell with reasons which means of transport and route will you take?**

(1) You have to reach Bhopal from Nagpur due to some emergency.

Ans. In such condition, we will choose airways as a route and aeroplane as a means of transport.

Reason : In some emergency it becomes essential to reach a particular place in order to tackle some urgent issues.

(2) You have to reach Kanyakumari carrying the message of cleanliness.

Ans. In such condition, we will choose roadways as a route and bus / private vehicle as a means of transport.

Reason : By using roadways, the message of cleanliness can be spread even up to remote areas.

(3) Send the Alphanso mangoes from Konkan to Arab countries.

Ans. In such conditions, we will choose airways as a route and aeroplane as a means of transport.

Reason : Alphanso mango is a perishable agricultural good. Therefore, it becomes essential to transport Alphanso mangoes with high speed.

(4) Indrayani variety of rice has to be exported from Pune to Cape Town of South Africa at low cost.

Ans. In such conditions, we will choose waterways as a route and ship as a means of transport.

Reason : Rice is comparatively durable agricultural good. In the given situation, it has to be transported at low cost.

(5) Large scale production of vegetables in Nandurbar has taken place but is not fetching a good price. The Nagpur-Surat National Highway and the Surat-Bhusawal Railway line pass through the district.

Ans. In a given situation, we will choose roadways and railways as a route and truck and goods' ways/train respectively as a means of transport.

Reason : The highway and railway line that pass through the district, connects the important towns and cities from the district.

(6) You have to go to Singapore from your village/town. You have ten days to do the same.

Ans. In a given situation we will choose airways as a route and aeroplane as a means of transport.

Reason : In a given situation, limited time i.e. only ten days are available.

Q. 3. Give it a try. (Textbook page 85)

- **Think about the transport issues you come across during your journeys. Write the innovative changes you would suggest in the transport routes or means in your copy.**

Ans. (A) The transport issues during journeys : (1) The need of using more than one means of transport i.e. railway, bus and boat to reach the destination and purchasing separate tickets for every means of transportation. (2) Unclean means of transportation. (3) Traffic jams on roadways.

(B) Innovative changes in transport routes or means of transport : (1) If there is need of using more than one means of transport i.e. railways, bus and boat, etc. to reach the destination, one ticket including the fares of all means of communication is to be issued. (2) Some amount from ticket should be refunded to all passengers if they keep the means of transport clean. (3) The supervisor must be appointed in every public means of transport and he should be given right to fine the passengers not keeping the means of vehicles clean. (4) Satellite system is to be used very effectively to avoid traffic jams on roadways.

Q. 4. Can you tell? (Textbook page 85)

(1) Make a list of various means of communication you are aware of.

Ans. Letters, radio, television, telephones, mobile phones, newspapers, internet, satellites, etc. are the various means of communication.

(2) How many of these do you actually use? Make a box around them.

Ans.

Telephone	Mobile phone	Internet

(3) For what do you use them?

Ans. We use these means of communication to exchange important information, ideas, opinions, etc. with friends, parents, relatives and teachers.

(4) Who uses the remaining means?

Ans. The remaining means are used by parents, other relatives, businessmen from the locality and government agencies.

Q. 5. Give it a try. (Textbook page 86)

- **Look for the other uses of artificial satellites. Try to understand how they are related to your daily life.**

Ans. (A) The other uses of artificial satellites are as follows : (1) Studying about other planets. (2) Live broadcasting of a program/event from any region of the earth. (3) Studying the resources on earth's

surface. (4) Regional planning. (5) Planning defence strategies... (6) Forecasting weather, etc.

(B) The artificial satellites are directly or indirectly related to personal, social, educational, economic, cultural, political aspects in everyone's daily life. For example, through artificial satellites, one can enjoy a live program like award functions/cricket match, etc. on television.

Q. 6. Can you do it? (Textbook page 87)

- **Observe the image and the instructions following image given on page 87 of the textbook and answer the following questions :**

(1) Which are the dates mentioned in the image?

Ans. The dates mentioned in the image is 15-05-2017 and 19-05-2017.

(2) What does the information in the image tell?

Ans. The information in the image tells the following : (1) Many of your documents, photos, videos, databases and other files are no longer accessible because they have been encrypted. (2) Maybe you are busy looking for a way to recover your files, but do not waste your time. (3) Nobody can recover your files without our decryption service. You can try to decrypt some of your files for free. If you want to decrypt all your files, you need to pay. (4) You only have 3 days to submit your payment. After that, the price will be doubled. Also, if you don't pay in 7 days, you won't be able to recover your files forever.

(3) What is the price asked for recovering the files and in what currency?

Ans. The price asked for recovering the files is 300 U.S. dollars. It is demanded in a form of bit coin i.e. digital currency.

(4) What is the type of crime here?

Ans. It is a cyber crime.

ACTIVITIES

(1) **Can you do it ? (Textbook page 87)**

Send to your friend an e-mail giving information about the trip that your school is organizing. Send a copy of the same to your class teacher for information.

*(2) **Collect information regarding the satellites sent by India for educational and communicational purposes. Make use of ICT for that.**

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

12 TOURISM

Points to be studied

- **Tourism** : Meaning and types.
- **India** : Important tourist places, Scope and importance of tourism development.
- **Maharashtra** : Important tourist places.

SUMMARY

12.1 Nature of tourism :

(1) Visiting various places away from our homes for getting joy, entertainment, trading, staying, etc. is called tourism.

(2) We undertake short or long journeys or various purposes like festivals, family functions, fairs, sports, wanderings, recreation, etc. We need to carry out some preparations before going on a tour.

12.2 Major attractions for tourists :

(1) The places of tourism become famous due to some special reasons.

(2) Natural beauty, pleasant weather, exquisite scenery, hot springs, sea coasts, historical monuments, religious places, forest areas, etc. are major attractions for tourists.

12.3 Types of tourism on the basis of political boundaries :

(1) On the basis of political boundaries, tourism can be classified into domestic tourism and foreign tourism.

(2) Tourism within the boundaries of one's own country is called domestic tourism. Tourism that involves crossing boundaries of one's own country is called foreign tourism.

12.4 Types of tourism on the basis of the aim of tourism and specialities of destination :

(1) On the basis of the aim of tourism and specialities of destination, tourism can be classified into religious tourism, coastal (sea) tourism, health tourism, sports tourism, ecotourism, agro tourism, film tourism, etc.

(2) **Eco-friendly tourism (Ecotourism)** : The concept of eco-friendly tourism came into light when it was realised that due to increasing population, pollution and urbanization, environment is degrading. In ecotourism, the tourists visit the place by taking precautions of not damaging or degrading the environment.

(3) **Agro tourism** : Recently, the concept of agro tourism has arisen. In this type of tourism, a pollution free location away from the city holding an agricultural activity is visited. In this type of tourism, tourists are shown a glimpse of agricultural life.

(4) **Film tourism** : In film tourism, the locations where films are shot are shown to the tourists. A number of amenities and facilities are provided at such places to attract tourists.

(5) **Coastal (sea) tourism** : Coastal (sea) tourism is a new type of tourism. Tarkarli in Konkan is famous for snorkelling and scuba diving.

12.5 Importance of tourism :

(1) Tourism is an important tertiary occupation. Through tourism, the world gets introduced to a region's natural, social and cultural environment.

(2) Tourism helps in increasing inflow of foreign currency. It boosts the development of tourist places. It generates employment opportunities.

(3) Tourism should be promoted through advertisements in various media which will help in its growth.

12.6 Importance of tourism development in India :

(1) India is diverse in terms of culture and nature. Tourism has lot of potential here.

(2) The factors like the richness of natural beauty, attractive landscapes, high mountains like the Himalaya, exquisite coastal areas, diversity in culture, festivals, traditions, costumes, variety of dishes, hospitality, etc. are helpful in increasing opportunities of tourism in India.

(3) **Tourism and economic development :** Tourism helps the Indian economy in a great way. Tourism boosts the development of various services. It improves infrastructure and generates employment opportunities. Therefore, tourism is said to be invisible trade.

(4) **Tourism and environmental development :** Tourism is good for environmental development. Economic investment is made by the government for the development of tourism industry. In ecotourism, factors like housing, resorts, traffic routes, etc. are also designed in an eco-friendly manner and the concept of recycle and reuse is also applied.

(5) **Tourism and health :** Some tourists visit India to avail of health facilities. Visiting the places of tourist interest and achieving mental peace and physical strength through Indian Ayurveda and yoga is the objective behind it.

(6) **Tourism and social development :** Some specific social programmes can be accomplished through tourism. If facets like rural lifestyle, tribal life and culture are included in tourism, tourism gets a social dimension and the neglected components of the society can be included in development. There is a great potential for the development of such a type of tourism in India. In future, tourism will be an important factor in the Indian economy.

QUESTIONS AND ANSWERS

Q. 1 Complete the following statements by choosing the appropriate alternatives from those given in the brackets : *(1 Mark each)*

(1) ..... is famous as a hill station. *(Nagpur, Nainital, Panji)*

(2) ..... is a religious place. *(Kolkata, Tirupati, Srinagar)*

(3) Udagamandalam is a famous hill station located in ..... state. *(Tamil Nadu, Maharashtra, Goa)*

Ans.

(1) Nainital is famous as a hill station.

(2) Tirupati is a religious place.

(3) Udagamandalam is a famous hill station located in Tamil Nadu state.

Q. 2 Match the columns : *(1 Mark each)*

'A'	'B'
(1) Dwarka	(a) Maharashtra
(2) Ajanta	(b) Karnataka
(3) Mysore	(c) Gujarat
(4) Bimbetka	(d) Goa
	(e) Madhya Pradesh
	(f) Jharkhand

Ans. (1) Dwarka – Gujarat

(2) Ajanta – Maharashtra

(3) Mysore – Karnataka

(4) Bimbetka – Madhya Pradesh.

Q. 3 Answer the following questions in one sentence each : *(1 Mark each)*

(1) By which name is the tourism within one's own country's boundaries is known?

Ans. The tourism within one's own country's boundaries is known as 'domestic tourism'.

(2) By which name is the tourism that involves crossing of one's own country's boundaries is known?

Ans. The tourism that involves crossing of one's own country's boundaries is known as 'foreign tourism'.

(3) What is meant by health tourism?

Ans. Health tourism is a type of tourism in which tourists travel for availing health facilities, achieving mental peace and physical strength is called 'health tourism'.

(4) What is meant by cultural tourism?

Ans. Cultural tourism is a type of tourism in which tourists travel to collect information and to experience traditions, customs, art, lifestyle of people, etc. of a particular region.

Q. 4 Identify the type of tourism from the following statements : *(1 Mark each)

(1) Hemant Kumar went to Mexico to learn about the architectural skills of the Mayan culture.

Ans. International / Foreign tourism.

(2) Portuguese tourists had come to Goa to participate in the Goa Carnival.

Ans. International / Foreign tourism.

(3) To seek treatment in a naturopathy centre, John and Amar went to Kerala.

Ans. Domestic tourism.

(4) Pundalikrao accomplished the Char Dham Yatra with his family.

Ans. Religious tourism.

(5) Rameshwari from Pune went to enjoy Hurda (Roasted Grain) party and learn about modern and traditional methods of agriculture.

Ans. Agro tourism.

(6) Sayyed family went to Ajmer Durgah.

Ans. Religious tourism.

Q. 5 Match the columns identifying the correlation. Make a chain. *(1 Mark each)

Group 'A'	Group 'B'	Group 'C'
Tadoba	Madhya Pradesh	Lake
Bird Sanctuary	Agra	Butterflies
Sanjay Gandhi National Park	Manipur	Kailash caves
Taj Mahal	Nannaj	Film city
Ramoji Film City	Ellora	World famous wonder
Radhanagri	Mumbai	Ancient cave-paintings
Bimbetka	Hyderabad	Great Indian Bustard (Maaldhok)
Ancient caves	Kolhapur	Kanheri caves
Eaglenest Wildlife Sanctuary	Chandrapur	Bison
Loktak	Arunachal Pradesh	Tiger

Ans. (1) Tadoba – Chandrapur – Tiger.

(2) Bird Sanctuary – Nannaj – Great Indian Bustard (Maaldhok).

(3) Sanjay Gandhi National Park – Mumbai – Kanheri caves.

(4) Taj Mahal – Agra – World famous wonder.

(5) Ramoji Fim City – Hyderabad – Film city.

(6) Radhanagari – Kolhapur – Bison.

(7) Bimbetka – Madhya Pradesh – Ancient cave paintings.

(8) Ancient caves – Ellora – Kailash caves.

(9) Eaglenest Wildlife Sanctuary – Arunachal Pradesh – Butterflies.

(10) Loktak – Manipur – Lake.

Q. 6 Answer the following questions in one sentence each : *(1 Mark each)*

(1) What is meant by tourism?

Ans. (1) Visiting various places away from our homes for getting joy, entertainment, trading, staying, etc. is called tourism.

(2) Which preparations need to be carried out before going to visit a tourist place?

Ans. The following preparations need to be carried out before going to visit a tourist place : (1) Selecting the route to go to tourist place. (2) Choosing the means of transport to reach the destination. (3) Packing essential things, etc.

(3) Explain the major attractions for tourists.

Ans. (1) Natural beauty, pleasant weather, exquisite scenery, hot springs, sea coasts, historical monuments, religious places, forest areas, etc. are major attractions for tourists.

(4) What is meant by domestic tourism?

Ans. (1) Tourism within one's own country's boundaries is called domestic tourism.

(5) What is meant by international tourism?

Ans. (1) Tourism that involves crossing one's own country's boundaries and visiting some other country is called international tourism. It is also called foreign tourism.

Q. 7 Write short notes : *(2 Marks each)*

(1) Eco-friendly tourism (Ecotourism).

Ans. (1) The concept of eco-friendly tourism came into light when it was realised that due to increasing population, pollution and urbanization, environment is degrading. (2) The nature of ecotourism is eco-friendly. (3) In ecotourism, the tourists the place are visited by taking precautions of not damaging or degrading the environment. (4) Ecotourism includes avoiding sound pollution and air pollution, not hurting trees, birds, animals, etc. in the forests, etc.

(2) Agro tourism.

Ans. (1) Recently the concept of agro tourism has arisen. (2) In this type of tourism, a pollution free location away from the city holding an agricultural activity is visited. (3) In this type of tourism, tourists are shown a glimpse of agricultural life. (4) Tourists from urban areas live on the farms for a change. They accept the hospitality of farmers by making payments for the services like stay, food, etc. (5) Number of agro tourism centres have been developed in Pune and Kolhapur districts of Maharashtra.

(3) Film tourism.

Ans. (1) In film tourism, the locations where films are shot are shown to the tourists. (2) A number of amenities and facilities are provided at such places to attract tourists. (3) Mumbai film city, Ramoji film city are the famous film tourist places in India.

(4) Coastal (sea) tourism.

Ans. (1) Coastal (sea) tourism is a new type of tourism. (2) Tarkarli in Konkan is famous for snorkelling and scuba diving. It is also famous for its seabed and the biodiversity. (3) MTDC has started a 'scuba diving training centre' of international standards at Tarkarli of Malwan taluka in Sindhudurg district.

Q. 8 Explain the following : *(4 Marks each)*

(1) Differentiate between religious and cultural tourism.

Ans. The differences between religious and cultural tourism are as follows : (1) Religious tourism is a type of tourism in which tourists travel for pilgrimage, missionary, etc. On the other hand, cultural tourism is a type of tourism in which tourists travel for gathering new information and experiencing culture of a particular region. (2) In religious tourism various religious places, temples, churches, etc. are visited for performing religious activities and gaining spiritual peace. On the other hand, in cultural tourism art, architecture, religion, customs, traditions, lifestyle, etc. of a particular region are experienced and studied.

***(2) What are the objectives of tourism?**

Ans. The objectives of tourism are as follows : (1) Getting joy (2) Getting entertained (3) Trading (4) Staying (5) Availing of health facilities (6) Getting a glimpse of agricultural life (7) Performing religious activities, etc.

***(3) Explain the environmental effects of tourism.**

Ans. (1) Sometimes, tourists damage tourist place and degrade the environment. Some tourists throw litter and pollute the tourist place. (2) Therefore, all tourists must follow the concept of ecotourism. Ecotourism includes taking precautions of not degrading and polluting environment as well as not damaging tourist places. (3) Eco-friendly tourism includes avoiding noise pollution and air pollution at tourist places, not hurting trees, animals, birds, etc. in the forests. (4) Ecotourism also includes designing houses, resorts, traffic routes, etc. in an eco-friendly manner. (5) Ecotourism also follows the concept of recycle and reuse. Thus, tourism (ecotourism) has many favourable effects on the environment.

***(4) What opportunities develop with development of tourism?**

Ans. The following opportunities (employment opportunities) are developed with development of tourism : (1) Restaurants (2) Shops (3) Transportation (4) Entertainment (5) Resorts / lodges (6) Medical services (7) Trading (8) Banking, etc.

***(5) Suggest measures after explaining the problems arising at the tourist places.**

Ans. (A) The problems that may arise at the tourist places : (1) Shortage of lodges (2) Lack of frequency of means of transportation (3) Environmental issues (4) Lack of medical services (5) Lack of means of communication, etc.

(B) Measures to minimize the problems arising at the tourist places : (1) Government should provide ample facilities of lodges at famous tourist places at moderate price. (2) All tourist places as well as remote tourist places must be connected by speedy transport facilities. (3) Government should appoint officers to keep a watch on cleanliness at tourist places and they should be given right to take immediate actions against tourists throwing litter at tourist places. (4) Government should open medical dispensaries near the tourist places. (5) Communication zone, giving all facilities of communication must be developed at every tourist place.

***(6) Explain with reason the places of interest that can be developed as tourist centres in your district.**

Ans. (A) The places of interest that can be developed as tourist centres in my district are as follows : (1) Nandgaon (2) Unhere (3) Pratapgad (4) Karjat (5) Murud (6) Revdanda, etc.

(B) The reasons for the places of interest that can be developed as tourists centres : (1) Nandgaon, Revdanda, Murud have clean sea shores. (2) The process of formation of landforms can be studied at Revdanda. (3) Unhere is famous for hot springs. (4) Pratapgad has historical importance. (5) Thus, Revdanda, Unhere, Pratapgad are the most suitable places for field visits and educational tourism. (6) Karjat has a great potential for agro tourism.

(**Note** : Students, here it is assumed that you stay in Raigad district. The answer to this question is to be written according to the district in which you live.)

***(7) Local people get employment due to tourism. Give reasons.**

Ans. (1) Tourists often need various types of services at tourists places. (2) As its effect, tourism generates employment opportunities in restaurants, shops, transportation, entertainment, health industry, trading, banking, etc. In this way, local people get employment due to tourism.

***(8) Explain how relevant is the concept of "Atithi Devo Bhava" (Guest is our God) with respect to tourism.**

Ans. (1) Tourism generates employment opportunities in restaurants, shops, transportation, entertainment, health industry, trading, banking, etc. (2) Tourism boosts the development of

infrastructure. (3) Tourism also helps in increasing inflow of foreign currency. (4) Tourism helps in economic development of a particular region and country. Therefore, the concept of "Atithi Devo Bhava" (Guest is our God) is quite relevant.

(9) Explain the factors that are helpful in increasing opportunities of tourism in India.

Ans. The following are the factors that are helpful in increasing opportunities of tourism in India : (1) Natural beauty (2) Attractive landscapes (3) High mountains like the Himalaya (4) Exquisite coastal areas (5) Diversity in culture (6) Festivals (7) Traditions (8) Costumes (9) Variety of dishes (10) Hospitality, etc. These factors attract many domestic as well as foreign tourists.

(10) Explain the relation between tourism and health.

Ans. (1) Some tourists visit India to avail the health facilities. (2) Visiting the places of tourist interest and achieving mental peace and physical strength through Indian Ayurveda and yoga is the objective behind it. (3) The medical and surgical treatment in Indian hospitals are cost effective. Therefore, many patients from various developing countries come in India for treatment. (4) Medical tourism has emerged due to various types of needs of patients visiting India.

(11) Explain the relation between tourism and social development.

Ans. (1) Some specific social programmes can be accomplished through tourism. (2) If facets like rural lifestyle, tribal life and culture are included in tourism, tourism gets a social dimension and the neglected components of the society can be included in development. (3) The tribal life in Melghat of Maharashtra and visit to model villages like 'Anandwan' project of the social activities of Baba Amte, Raleganslddhi, Hiwre Bazar, etc. create social consciousness and gives a fillip to development at such places. (4) There is a great potential for the development of such a type of tourism in India. In future, tourism will be an important factor in Indian economy.

***Q. 9 Study the following map and answer the following questions :** *(1 Mark each)*

***(1) Study the tourism map of Maharashtra given on page 95 of the textbook and answer the following questions :**

(1) Make a list of places having hot springs. What are the reasons for these being located here?

Ans. (A) A list of places having hot springs : (1) Vajreshwari (2) Unhere (3) Unapdev (4) Sav (5) Unakeshwar (6) Kapeshwar.

(B) The reasons for these places to be located at their places : At these places, due to excess of geothermal energy, hot springs are located below the surface of the ground.

(2) At what places do you find the correlation between transportation routes and development of tourism?

Ans. The correlation between transportation routes and development of tourism is found at the following places : (1) Mumbai (2) Pune (3) Nagpur (4) Nashik (5) Kolhapur (6) Nanded (7) Shegaon (8) Aurangabad (9) Ratnagiri (10) Solapur.

(2) Make friends with maps!

(Textbook page 89)

- **Study the Figure 12.1 given on page 89 of the textbook and answer the following questions : (Use an atlas for the reference.)**

(1) Out of these, which tourist places do you know? Make a list.

Ans. A list of known tourist places : (1) Agra (2) Ellora (3) Udagamandalam (4) Amritsar (5) Delhi.

(2) For what are the selected places famous?

Ans. The selected places are famous for the following : (1) Agra – Taj Mahal (2) Ellora – Caves (3) Udagamandalam – Hill station (4) Amritsar – Golden Temple (5) Delhi – Red Fort.

(3) Make a list of religious and historical sites from the map.

Ans. (A) Religious sites : (1) Tirupati (2) Varanasi (3) Konark (4) Rameshwaram, etc.

(B) Historical sites : (1) Mumbai (2) Pune (3) Delhi (4) Jhansi (5) Kolkata, etc.

(4) Make a list of hill stations, places having sanctuaries and places along the coasts.

Ans. (A) A List of hill stations : (1) Mussoorie (2) Nainital (3) Udagamandalam (4) Darjiling (5) Srinagar (6) Jammutavi (7) Leh (8) Shimla, etc.

(B) A list of places having sanctuaries : (1) Nainital (2) Melghat (3) Bharatpur (4) Periyar, etc.

(C) A list of places along the coast : (1) Mumbai (2) Panaji (3) Dwarka (4) Mangalore (5) Thiruvananthapuram (6) Kanniyakumari (7) Rameshwaram (8) Chennai (9) Vishakhapatnam (10) Konark, etc.

(5) Correlate the physiography and tourist places in India.

Ans. (1) There is a close relationship between physiography and tourist places in India. (2) Many tourist places are developed at various locations having different physiography. (3) The hill stations like Jammu, Srinagar, Nainital, Darjiling, Udagamandalam are developed in mountainous region of India. (4) The tourist places like Ujjain, Pune, Jabalpur, etc. are located at plateau region of India. (5) The tourist places like Jaisalmer, Jodhpur, etc. are developed in desert area of India. (6) The tourist places like Mumbai, Panaji, Mangalore, Kanniyakumari, Chennai, etc. are located in the coastal areas of India.

Q. 10 Show the following on a given outline map. Give index. ***(1 Mark each)***

(1) Show the following tourist places in an outline map of Maharashtra :

(1) Mumbai (2) Pune (3) Nashik (4) Nagpur (5) Aurangabad (6) Shegaon.

(2) Show the following tourists places in a outline map of India :

(1) Panaji (2) Mangalore (3) Agra (4) Jammu (5) Kolkata (6) Kanniyakumari.

ACTIVITY BASED/OPEN ENDED QUESTIONS

Q. 1. Can you tell? (Textbook page 88)

- **Dear friends, imagine that you have to go on a vacation with your family. Make a list of 15 favourite places in Maharashtra. After the list is prepared, put your places in the following relevant classification : (1) Places near sea (2) Historical places (3) National parks and sanctuaries (4) Hill stations (5) Religious places. Select one place from each group which you would like to visit. Discuss the reasons of your choice in the class.**

Ans. (A) A list of 15 favourite places in Maharashtra : (1) Mumbai (2) Pune (3) Nashik (4) Alibaug (5) Guhagar (6) Malvan (7) Shirdi (8) Shegaon (9) Chandoli (10) Pench (11) Karnala (12) Matheran (13) Mahabaleshwar (14) Jawhar (15) Parli Vaijanath.

(B) A relevant classification of 15 favourite places is as follows :

(1) **Places near the sea :** (1) Alibaug (2) Guhagar (3) Malvan.

(2) **Historical places :** (1) Pune (2) Mumbai (3) Nashik.

(3) **National parks and sanctuaries :** (1) Chandoli (2) Pench (3) Karnala.

(4) **Hill station :** (1) Matheran (2) Mahabaleshwar (3) Jawhar.

(5) **Religious places :** (1) Parli Vaijanath (2) Shirdi (3) Shegaon.

(C) Name of a place from each group which we would like to visit with reason :

(1) Name of a place near the sea which we would like to visit : Guhagar.

Reason : Guhagar is famous for its clean white sand beach. 'Shri Vyadeshwar' an ancient shiva temple is also located at Guhagar.

(2) Name of a historical place which we would like to visit : Pune.

Reason : Many historical forts are located in Pune.

(3) Name of a national park and sanctuary which we would like to visit : Karnala.

Reason : Karnala bird sactuary houses many species of resident birds.

(4) Name of a hill station which we would like to visit : Matheran.

Reason : One can reach Matheran by a Toy Train. Horse riding is another tourist attraction of Matheran. There are gardens, waterfalls, temples, markets and many scenic points at Matheran.

(5) Name of a religious place which we would like to visit : Shegaon.

Reason : A famous 'Gajanan Maharaj Temple' is located at Shegaon. 'Anand Sagar', a spiritual and entertainment park centre is also located at Shegaon.

Q. 2. Use your brain power ! (Textbook page 91)

- **Some issues related to tourism development are given below. Rewrite the inappropriate ones after correcting them :**

(1) The income of a country should be substantially high for the development of tourism.

Ans. Inappropriate. The income of a country need not be substantially high for the development of tourism.

(2) Domestic tourism should be given a boost.

Ans. Appropriate.

(3) Tourists from other countries should be banned.

Ans. Inappropriate. Tourists from other countries are to be encouraged.

(4) Tourists should be assured of a safe journey.

Ans. Appropriate.

(5) The cultural heritage of a country should be preserved.

Ans. Appropriate.

(6) We should respect other country's culture.

Ans. Appropriate.

(7) Government subsidies and incentives should be given for tourism business.

Ans. Appropriate.

(8) Participation in international sports should be encouraged.

Ans. Appropriate.

(9) Tourism should be encouraged through advertisements.

Ans. Appropriate.

(10) It is necessary to preserve the tourist places.

Ans. Appropriate.

(11) We should preserve the buildings of famous people who have contributed in various sectors as memorials.

Ans. Appropriate.

(12) Services and amenities should be developed for tourism.

Ans. Appropriate.

(13) Tourist agencies should be banned.

Ans. Inappropriate. Tourist agencies should be encouraged for their businesses.

(14) There is no ample scope in tourism field.

Ans. Inappropriate. There is an ample scope in tourism field.

(15) Tourism is a type of invisible trade.

Ans. Appropriate.

(16) All types of facilities should be developed for tourists.

Ans. Appropriate.

(17) The country's economy does not benefit at all from tourism.

Ans. Inappropriate. The country's economy gets benefited from tourism.

(18) The hidden potential of other sites should also be developed.

Ans. Appropriate.

(19) The forts and castles should be developed.

Ans. Appropriate.

Q. 3. Can you tell? (Textbook page 92)

(1) Which new forms of tourism have developed recently?

Ans. The following new forms of tourism have developed recently : (1) Medical tourism (2) Sports tourism (3) Eco-friendly tourism (4) Agro tourism (5) Film tourism, etc.

(2) Tell the reasons why new forms of tourism emerge.

Ans. The reasons for emergence of new forms of tourism are as follows : (1) Medical tourism has emerged due to increased awareness of physical and mental health among people. (2) Sports tourism has emerged due to increased fame of various sports and increased liking for other adventurous sea water sports. (3) Eco-friendly tourism has emerged due to increased awareness about maintaining environmental balance. (4) Agro tourism has emerged due to a need for a change from the urban life. (5) Film tourism has emerged due to increased attraction for film industry and attraction for careers in media.

ACTIVITIES

(1) Use your brain power! (Textbook page 88)

A trip has to be organized from your home to your favourite tourism destination. Find out the route with the help of various websites. Decide the journey route you will take. Consider factors like duration of the trip, materials required for travel, means of transport, availability of the route, etc. Get the estimated travel cost per person.

(2) Think about it. (Textbook page 94)

Just think, can we go into the space for tourism? What will we have to do for that? Where can we go? Present your ideas in the form of pictures or paragraphs, etc.

***(3) Make an advertisement which promotes tourism and present it in the class.**

***(4) Make a notice board containing instructions for the tourists at a tourist place.**

Did you study the lesson/chapter from the **Navneet Digest**? Now, solve the test to ensure solid learning. Scan this **QR Code** for the test and its model answers.

MODEL QUESTION PAPERS

FIRST SEMESTER EXAMINATION (Lessons : 1 to 6)

Time : 2 Hrs.] **[Max. Marks : 40**

Notes : (1) All questions / activities are compulsory.
(2) Figures to the right indicate full marks.
(3) For Q. 4. (A) use supplied outline map and tie it to your main answer–sheet.
(4) For Q. 6. (A) use graph paper supplied to you and attach it to the main answer–sheet.
(5) Draw neat diagrams and sketches wherever necessary while writing answers.
(6) Use of stencil is allowed for drawing map while writing answers.
(7) Answers should be written in black or blue ink only. Answers written in pencil will not be considered.
(8) Use of pencil or colour pencil is allowed for diagrams, sketches and map work.

Q. 1. Choose the correct options and rewrite the sentences : 4

(1) If the contours are close to one another, the slope is ..... .
(a) gentle (b) steep (c) uniform

(2) Delta is an example of ..... landform.
(a) secondary (b) primary (c) tertiary

(3) The ..... is a fold mountain.
(a) Satpudas (b) Himalayas (c) Western Ghats

(4) Loess plains are formed due to ..... work.
(a) erosional (b) transportational (c) dispositional

Q. 2. Match the columns : 4

'A'	'B'
(1) Dot method	(a) Chemical weathering
(2) The Rockies	(b) Pollution
(3) Oxidation	(c) Use of dots
(4) Acid rain	(d) North America
	(e) South America
	(f) Physical weathering

Q. 3. Answer the following questions in *one* sentences each : *(Any four)* 4

(1) What is an isoline?
(2) What is meant by thematic map?
(3) In which country is the Kilimanjaro volcano found?
(4) Which agents do cause erosion?
(5) What is called wind?

Q. 4. (A) Mark and name the following on the outline map of the world with suitable signs and symbols. Show the index : *(Any four)* 4

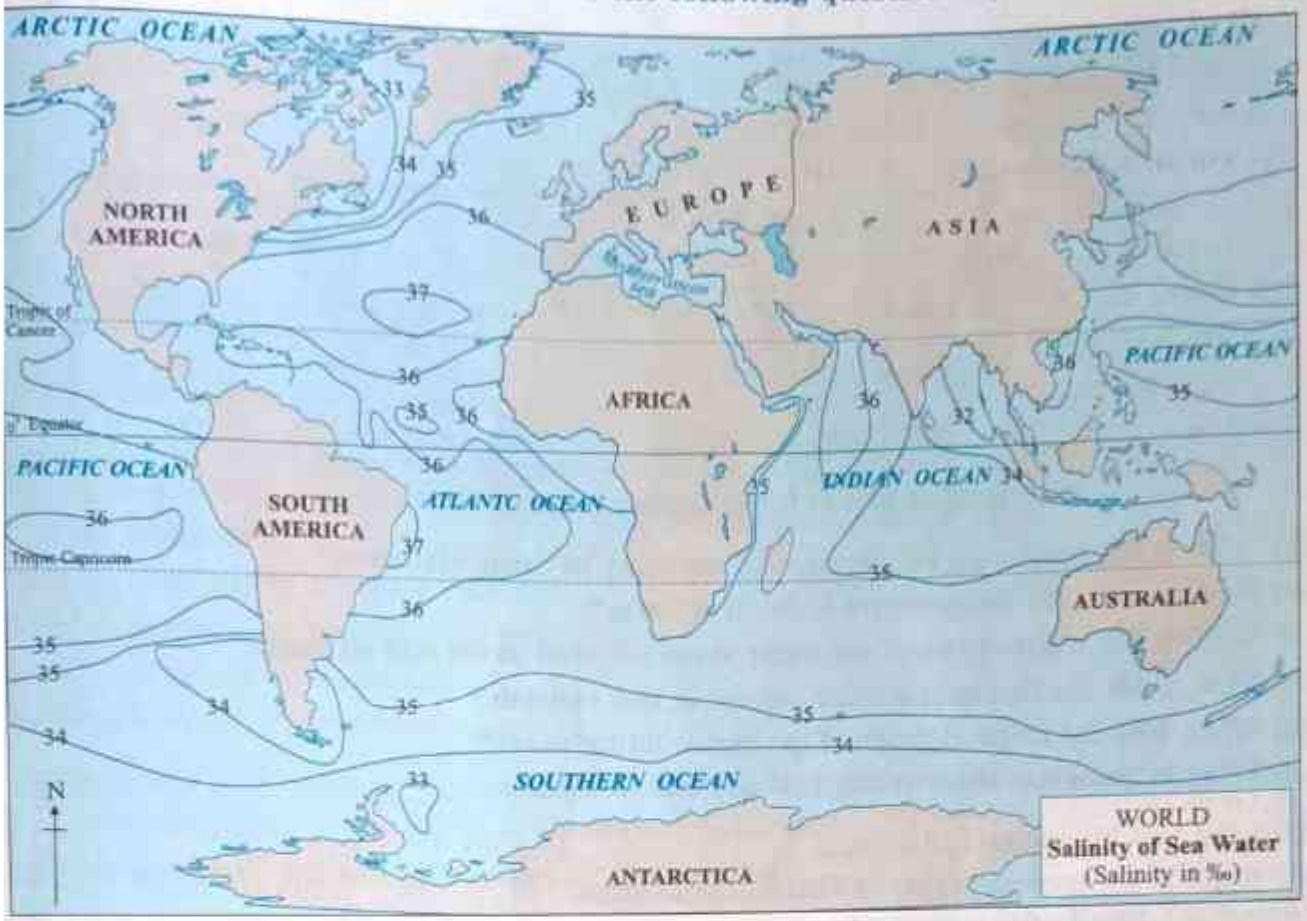
(1) Regions of less rainfall in Central India.
(2) High rainfall region on eastern coast of Australia.
(3) Region of convectional rain in South America.

i) A city from Europe experiencing fog till late afternoon.

ii) Region in the northernmost part of India experiencing snowfall.

iii) Regions of less rainfall in the continent of Africa.

B) Read the following map and answer the following questions : *(Any four)* 4



(1) What is the salinity around the tropics?

(2) Which region has the least salinity?

(3) Which region has salinity more than 37 ‰ ?

(4) What are the reasons of differences in salinity on a global level?

(5) How much is the salinity for the Indian Ocean?

Give geographical reasons : *(Any two)* 6

(1) Frost leads to mechanical weathering.

(2) The Barren Island is becoming conical in shape.

(3) Hail stones do not occur frequently.

(4) Many types of moraines are found.

Draw the following diagram and answer the following questions : 6

Draw the diagram of Canyon and answer the following questions :

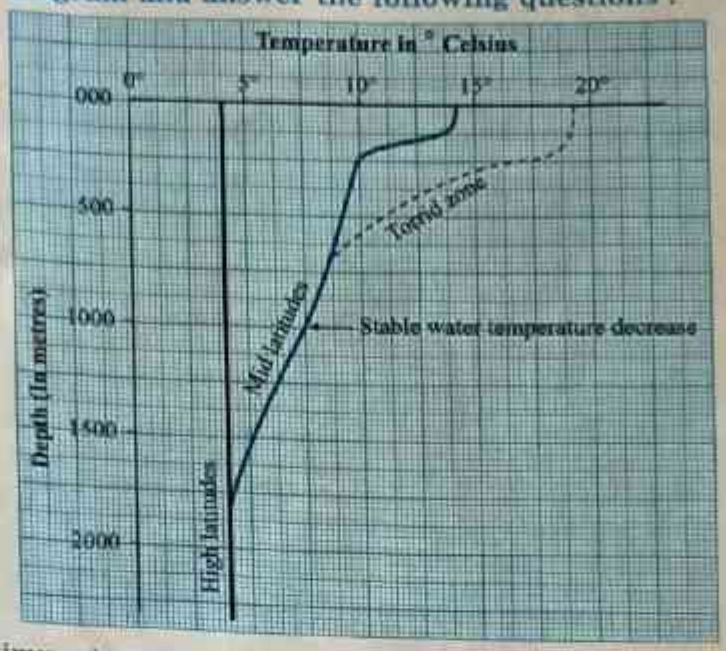
(1) By which agent is the canyon formed?

(2) By which work is the canyon formed?

(3) Name the other landform that is formed by the landform responsible for the formation of canyon.

OR

Read the following diagram and answer the following questions :



(1) What is the maximum temperature of sea water in equatorial areas?
(2) How much is the temperature at depth of 500 m?
(3) What is the temperature of sea water at the sea level in the mid latitude?
(4) How much has this temperature change at 1500 m depth?
(5) What does the thermal graph of the higher latitudes say?
(6) What is its temperature at 500, 1000 and 1500 m depth?

Q. 7. Explain the following : *(Any two)*
(1) Explain the uses and types of distributional maps.
(2) What is mass movements? What are the types of mass movements?
(3) Explain the types of seismic waves.

SECOND SEMESTER EXAMINATION (Lessons : 7 to 12)

Time : 2 Hrs.] **[Max. Marks : 40**

Notes : (1) All questions / activities are compulsory.
(2) Figures to the right indicate full marks.
(3) For Q. 4. (A) use supplied outline map and tie it to your main answer-sheet.
(4) For Q. 6. (A) use graph paper supplied to you and attach it to the main answer-sheet.
(5) Draw neat diagrams and sketches wherever necessary while writing answers.
(6) Use of stencil is allowed for drawing map while writing answers.
(7) Answers should be written in black or blue ink only. Answers written in pencil will not be considered.
(8) Use of pencil or colour pencil is allowed for diagrams, sketches and map work.

Q. 1. Choose the correct options and rewrite the sentences :
(1) ..... grew rapidly being important railway junction.
(a) Sawarde (b) Amaravati (c) Bhusawal
(2) In ..... economy, the means of production are under the control of private individuals.
(a) capitalist (b) socialist (c) mixed

(3) Earning maximum profit is the aim of ..... Economy.

(a) socialist (b) mixed (c) capitalist

(4) In ....., mixed economy is found.

(a) Sweden (b) Germany (c) Japan

Q. 2. Match the columns : 4

'A'	'B'
(1) World Standard Time	(a) Non- agricultural activities
(2) Urban areas	(b) Lack of planning
(3) Indian Standard Time	(c) 0° Greenwich Meridian
(4) The problem of solid waste	(d) 82.5° E Meridian
	(e) Capitalist economy
	(f) Communication

Q. 3. Answer the following questions in one sentence each : *(Any four)* 4

(1) What is meant by World Standard Time?

(2) What is meant by Standard Time?

(3) What is meant by International Date Line?

(4) What is meant by globalisation?

(5) What is meant by communication?

Q. 4. (A) Show the following on the outline map of Maharashtra. Show the index : *(Any four)* 4

(A) Cities with airways : (1) Mumbai (2) Nagpur (3) Nanded.

(B) Tourist places : (1) Nashik (2) Pune (3) Aurangabad.

(B) Read the following map and answer the following questions : *(Any four)* 4

(1) In which area do you find a dense network of transport routes in a map?
(2) Name any two places on National highway.
(3) Which area has a sparse network of transport routes?
(4) Name any two railway stations.
(5) Which region is lacking transport routes?

Q. 5. Give geographical reasons : *(Any two)* 6

(1) IDL is proving to be very useful in today's time.
(2) T.V. is a cheap means of communication.
(3) The day starts in the Pacific Ocean of the earth.
(4) Urbanisation is a social process.

Q. 6. Draw a compound bar graph for the following data and answer the following questions : 8

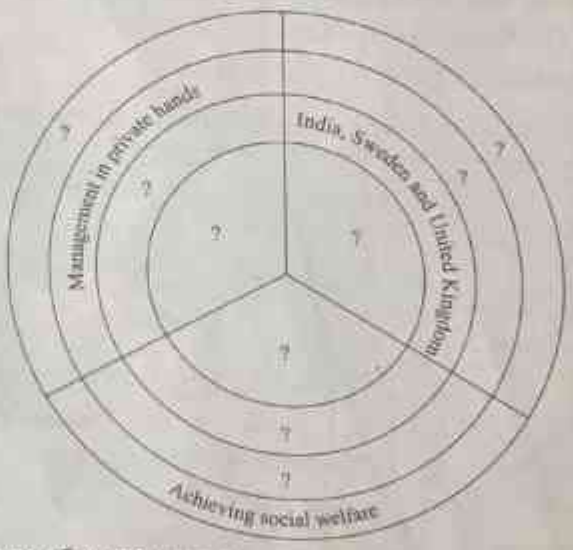
Country	Export	Import
China	2143	1960
India	272	380
Brazil	190	241
USA	1510	2380

Questions :

(1) By which countries is international trade dominated?
(2) Which countries has insignificant role in international trade?
(3) Which country has favourable balance of trade?

OR

Read the following diagram and answer the following questions : 6



(1) What are the three types of economies?
(2) Name two countries having capitalist economy.
(3) Name two countries having socialist economy.
(4) Which economy exists in India?
(5) In socialist economy, who controls the rights of management?
(6) What is the main objective of capital economy?

Q. 7. Explain the following in detail : *(Any two)* 8

(1) What is the importance of marketing from farmers 'point of view'?
(2) Discuss the causes of urbanisation.
(3) Explain the relation between tourism and social development.

PRADEEP E3563 (b)

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मराठी
अक्षरभारती

हिंदी
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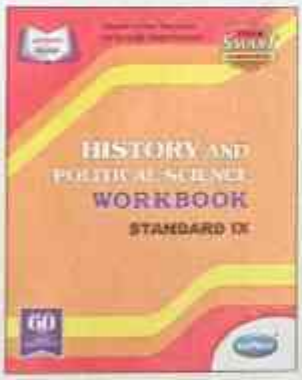
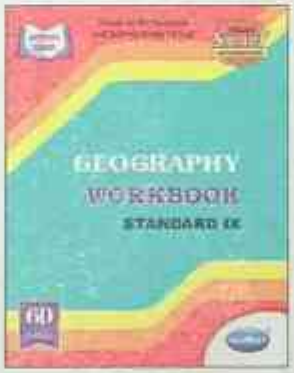
हिंदी
लोकवाणी

संस्कृत आनन्दः

संस्कृत आमोदः



HISTORY AND
POLITICAL SCIENCE



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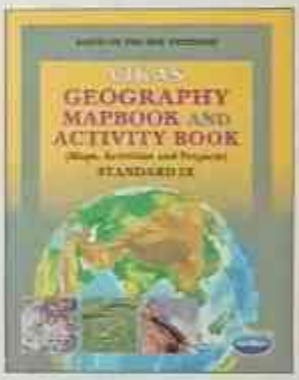

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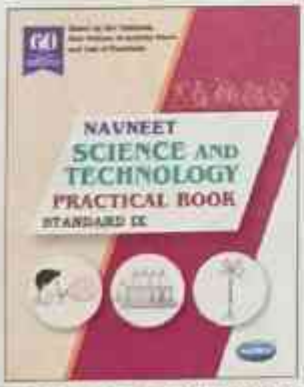
AND ACTIVITY BOOK



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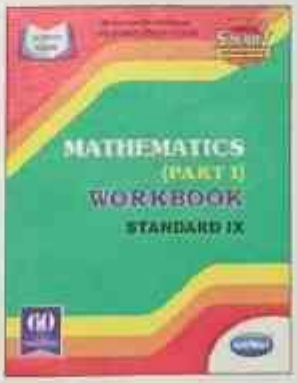
PRACTICAL BOOK



MATHEMATICS
(PART I)

MATHEMATICS
(PART II)

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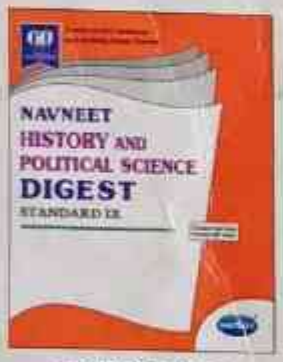
हिंदी
लोकवाणी

संस्कृत आनन्दः
(Composite Course)

संस्कृत आमोदः
(Entire Course)



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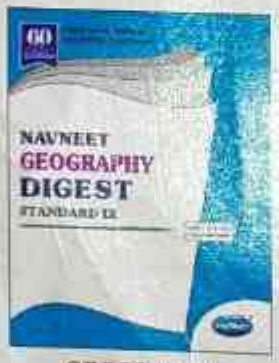

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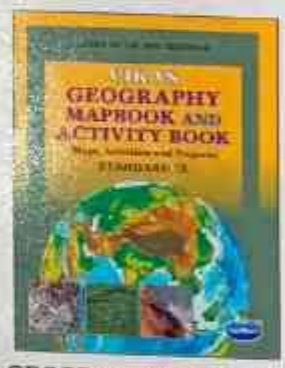

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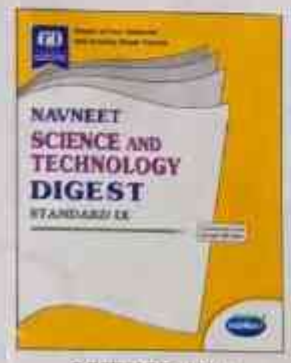
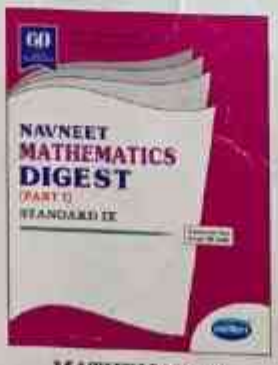
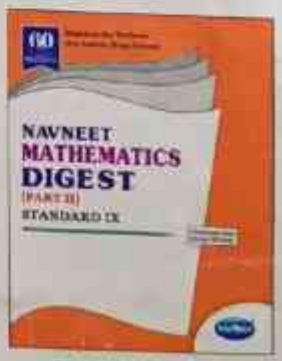


SCIENCE AND
TECHNOLOGY



MATHEMATICS
[PART I]



MATHEMATICS
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