

## Chapter - 1

# Seasons and Time

### Introduction

The wonders of seasonal change exhibited by the nature are varied. Seasons played an important role to make different colours in this green earth. Science gave new definitions to the many myths that are believed for ages. When the geocentric theory was replaced by heliocentric theory it provided more scientific base for the concept that day and night and seasons are the results of rotation and revolution. This lesson is about seasons and time differences in various parts on earth.

### Concepts

1. The apparent movement of the Sun, due to the inclination of axis, is the reason for the occurrence of seasons. There is variation in the sunlight that falls on the Earth due to the apparent movement of the Sun.
2. As a result of the apparent movement of the sun between Tropic of Cancer and Tropic of Capricorn, the different seasons - Spring, Summer, Autumn and Winter get repeated in a cyclic manner.
3. The axis of the Earth is tilted at an angle of  $66^{\circ} 30'$  from the orbital plane. If measured from the vertical plane this would be  $23^{\circ} 30'$
4. The Earth maintains its tilt of axis throughout its revolution. This is known as the parallelism of the Earth's axis
5. Northward apparent movement of the Sun from Tropic of Capricorn to Tropic of Cancer is termed as 'Utharayanam'.
6. Southward apparent movement of the Sun from Tropic of Cancer to Tropic of Capricorn is termed as 'Dakshinayanam'.
7. The apparent position of the Sun during the Earth's revolution will be over the Equator on March 21 and September 23. Hence the length of day and night will be equal during these days on both the hemispheres. These days are called equinoxes.

**Kollam District Panchayat & General Education Department**

8. From 21 March onwards, the Sun apparently shifts from the Equator northwards and reaches vertically over the Tropic of Cancer ( $23\frac{1}{2}^{\circ}\text{N}$ ) on 21 June. This day is known as the Summer Solstice in the Northern Hemisphere.
9. The Sun continues its southward apparent shift from the Equator from 23 September and reaches vertically above Tropic of Capricorn ( $23\frac{1}{2}^{\circ}\text{S}$ ) on 22 December. This day is known as Winter Solstice in the Northern Hemisphere.
10. Spring is the season of transition from winter to summer.
11. Autumn marks the transition from the severity of summer towards winter.
12. During the period from March to September, as the Sun is in the Northern Hemisphere, the north polar regions experience continuous daylight for six months.
13. During the remaining period, that is from September to March, as the Sun is in the Southern Hemisphere north polar regions experience continuous night for six months.
14. Time estimated at each place, based on the position of the Sun, is termed as the local time.
15. As the Earth rotates from west to east, the Sun rises in the east
16. The angular distance of the Earth is  $360^{\circ}$ . The time required to complete a  $360^{\circ}$  rotation is 24 hours. The time required for the Earth to complete the rotation of  $1^{\circ}$  longitude is 4 minutes. The time required for the rotation of  $15^{\circ}$  longitudinal area is 1 hour.
17. The zero degree longitude is known as the Greenwich Meridian. Time is calculated worldwide based on the Greenwich Line. Hence this line is also known as the prime meridian.
18. Based on the Greenwich Median, the world is divided into 24 zones, each with a time difference of one hour. These are known as time zones.
19. The local time at the standard meridian is the standard time of that country.
20. The  $82\frac{1}{2}^{\circ}\text{E}$  longitude which passes almost through the middle of these longitudes has been fixed as the standard meridian of India.  $180^{\circ}$  longitude is known as International date line.
21. The travellers who cross international date line from the West calculate the time by advancing it by one day and those who cross the line from the west deduct one day.

**Kollam District Panchayat & General Education Department****Questions**

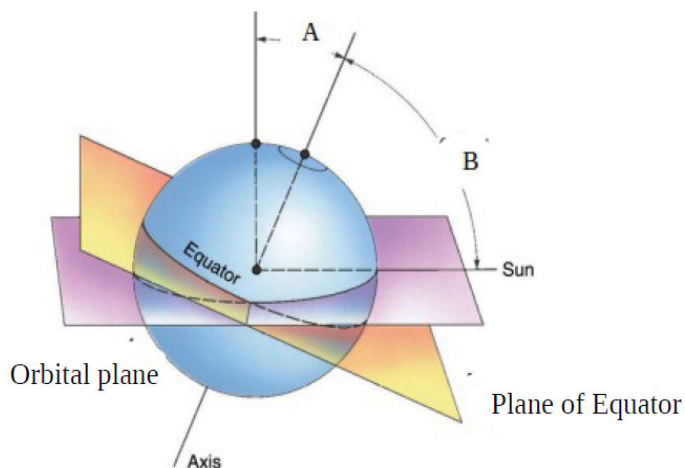
1. Identify the season during which the plants shed their leaves? (Score-1)

a. Winter b. Spring c. Summer d. Autumn (Score-1)

2. Complete the table given below (Score-3)

<u>Earth</u>	<u>Time required</u>
To rotate $15^{\circ}$	A .....
To complete one rotation	B. ....
To complete a revolution	C .....

3. The picture below shows the inclination of the Earth's axis. Observe the picture and write the answers to the following questions.



a. What is the angle to be recorded in the A and B in the picture? (Score-3)

b. What is the parallelism of the axis?

4. The apparent movement of the sun is caused by the parallelism of the Earth's axis.

a. What is apparent movement of sun?

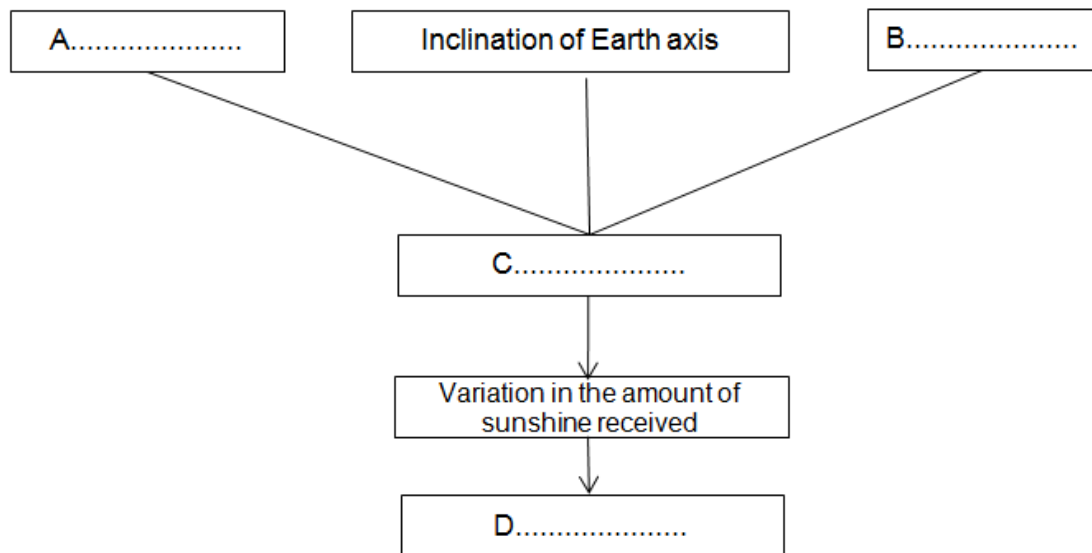
**Kollam District Panchayat & General Education Department**

b. What is the result of the apparent movement of the sun?

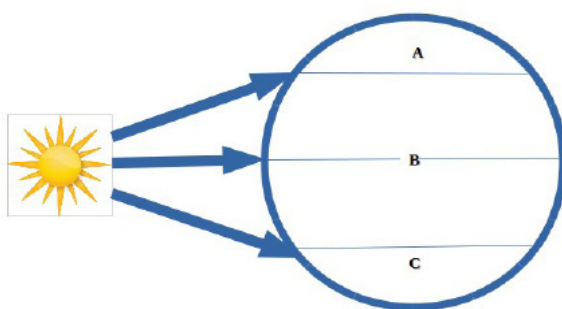
(Score-4)

5. Fill in the blanks

(score 4)

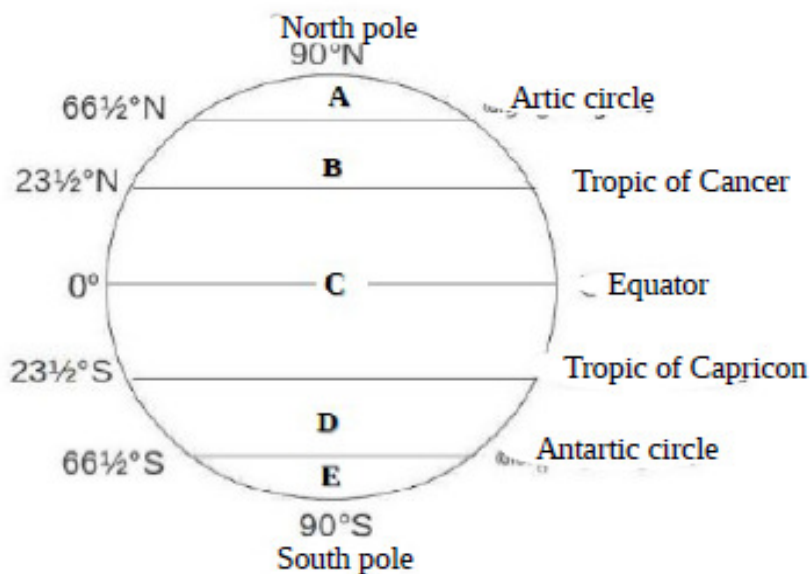


6. Analyse the picture below and answer the questions

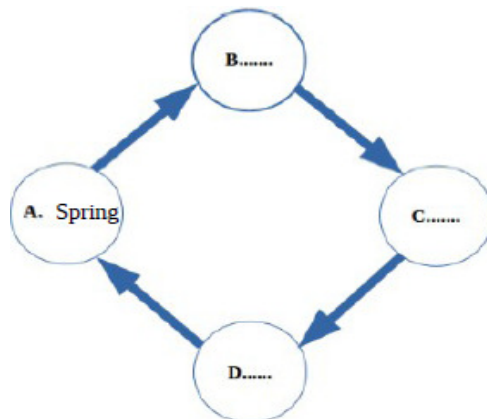


## Kollam District Panchayat &amp; General Education Department

- a. What is the variation in the availability of sunlight in the areas marked A, B and C (more / less)
- b. What is the reason for the variation in the availability of sunlight received in? (Score-3)
7. In which of the following areas marked in the picture below is the seasonal difference most felt? Why is it that in other areas the seasons do not feel significant? (Score-5)

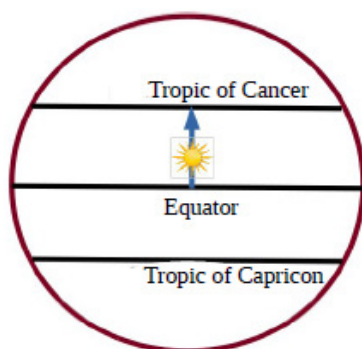


8. Due to the apparent movement of the sun, different seasons on earth are cyclically repeated. Write the names of the seasons in order in the picture below (Score-3)



## Kollam District Panchayat &amp; General Education Department

9. Which of the following days is a winter solstice in northern hemisphere?  
a) September 23 b) March 21 c) December 22, d) June 21
10. On which days do the sun rays fall vertically on equator? What these days are called?  
What are the significant of these days? (Score-4)
11. On which day does the sun rays fall vertically on tropic of cancer? (Score-4)  
By what name is this day known? What are the significant of this day?
12. On which day does the sun rays fall vertically on tropic of Capricorn ?  
By what name is this day known? What are the significant of this day? (Score-4)
13. Observe the picture below and write the answers to the questions (Score-4)



- a. Apparent movement of the sun as shown in the figure, What is the season to feel in the Northern Hemisphere ?
- b. What are the characteristics of this season in the Northern Hemisphere?
- c. What is the season in the Southern Hemisphere during the same period?
14. Complete the table

Day	Apparent position of sun	Name of the day	
		Northern Hemisphere	Southern Hemisphere
Mrch 21	A.....	Equinox	B.....
C.....	Tropic Cancer	D.....	Winter Solistice
Sep-23	E.....	F.....	Equinox
G.....	Tropic of Capricorn	Winter Solistice	H.....

## Kollam District Panchayat &amp; General Education Department

15. Complete the table

(score 5)

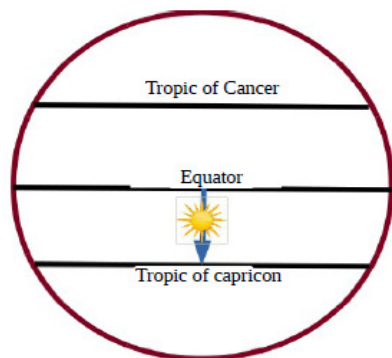
Day	Apparent position of sun	Duration of day		Duration of night	
		Northern Hemisphere	Southern Hemisphere	Northern Hemisphere	Southern Hemisphere
March 21	A.....	Equal	B.....	Equal	Equal
C.....	Tropic of Cancer	D.....	Shortest	E.....	Longest
Sep-23	F.....	Equal	G.....	Equal	Equal
H.....	Tropic of Capricorn	I.....	Longest	Longest	J.....

16. Complete the table

(score 4)

Months	Apparent movement of sun	Season	
		Northern Hemisphere	Southern Hemisphere
From March 21 to June 21	A	Spring	B
C	From Tropic of Cancer to equator	D	Winter
From September 23 to December	E	Autumn	F
G	From Tropic of Cancer to equator	H	Summer

17. Observe the picture below and write the answers to the questions



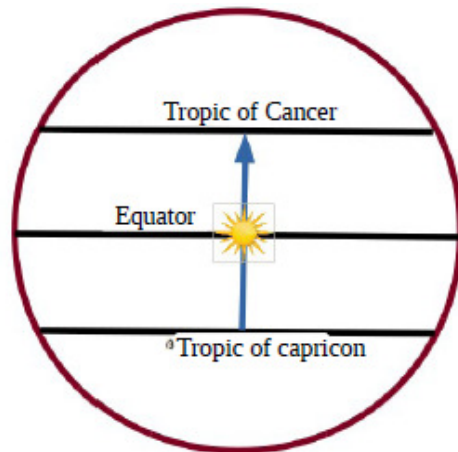
**Kollam District Panchayat & General Education Department**

a. Apparent movement of the sun as shown in the figure, What is the season to feel In the Northern Hemisphere ? (Score-4)

b. What are the characteristics of this season in the Northern Hemisphere?

c. What is the season in the Southern Hemisphere during the same period?

18. Observe the picture below and write the answers to the questions. (Score-4)

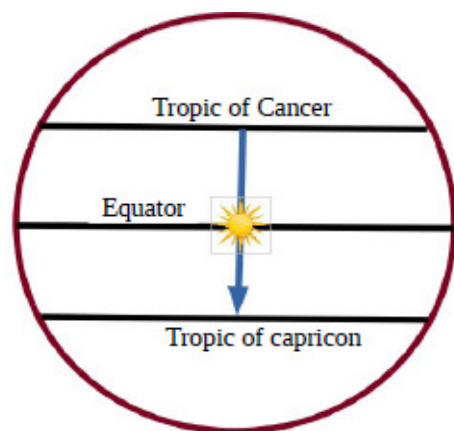


a. What is the name of the apparent movement of the sun mentioned in the picture?

b. When does this apparent movement of the sun begin and end?

c. What is the change in the duration of day during this period in the Northern Hemisphere?

19. Observe the picture below and write the answers to the questions. (Score-4)





**Kollam District Panchayat & General Education Department**

- What is the name of the apparent movement of the sun mentioned in the picture?
- When does this apparent movement of the sun begin and end?
- What is the change in the duration of day during this period in the Northern Hemisphere?

20. Select the appropriate ones from the brackets and fill in the blanks in the table below.

(Northern Hemisphere, Southern Hemisphere, North pole, South pole)

Months	Apparent position of sun	6 months daylight	6 months night
March to september	A.....	B.....	C.....
September to march	D.....	E.....	F.....

(Score-3)

21. Each country considers a fixed longitude as a standard longitude for timing.

Why?

(Score-3)

22. Explain the importance of the Greenwich median and the International date line in time calculation.

(Score-4)

23. Write the metropolitan cities in the picture in the order in which they first appear at sunrise

(Score -4)



24. How long does it take for a  $30^{\circ}$  longitudinal area to pass in front of the sun?

(Score-2)

## Kollam District Panchayat &amp; General Education Department

25. What are the seasons experienced in India when the apparent position of the Sun is on Tropic of cancer and Tropic of capricorn ? (Score-2)
26. Why is the  $82^{\circ} 30^{\circ}$  longitude considered to be the standard longitude of India? (Score-3)
27. What are the two transition periods between summer and winter? (Score-2)
28. Which of the following statements is not related to longitude
- Used for time calculation
  - Help to identify time zone
  - Value increases towards north (Score-1)
29. If two children start their journey from  $0^{\circ}$  longitude, one to east and the other to west up to  $30^{\circ}$ . What will be the time difference between them. (Score-3)
30. Which of the following days is a winter solstice day in northern hemisphere?
- September 23, b. March 21.
  - December 22, d. June 21. (Score-1)
31. In which time in India we could see the live broadcast of a cricket match that started at 8. am in England.? Give reasons. (Score-4)
32. What are the factors that cause seasons? (Score-4)
33. What is the difference in duration of days and nights in the Northern Hemisphere on solstice days and equinoxes? (Score-4)
34. What is local time? (Score-1)
35. What time is at International date line when it is 12 noon at Greenwich meridian? (Score-1)
36. There are 365 days in a year. But some years include 366 days. What these years are called? Why are there 366 days in such years? (Score-3)
37. If you look at the calendar, it shows different sunrise times on different days. What is the reason? (Score-3)
38. Fill in the blanks in the table.

The season between winter and summer	A.....
The season between summer and winter	B.....
The season after spring	C.....
The season after Autumn	D.....

(Score-4)

**Kollam District Panchayat & General Education Department**

39. The time difference between each degree longitude is 4 minutes.  
How is this calculated? (Score-2)
40. The earth is divided into 24 time zones.  
a. What is the longitudinal difference of each time zone?  
b. What is the time difference in each time zone? (Score-2)
41. There is an increase in time towards the east and decrease in time towards the west of all the longitude other than  $180^{\circ}$  longitude (Score-2)
42. Why do certain countries consider more than one longitude as their standard meridians? Give an example for such a country. (Score-2)
43. Which of the following is a longitudinal line drawn completely excluding land area?  
a. Equator  
b. Greenwich Meridian  
c. International Date line  
d.  $82^{\circ} 30^{\circ}$  East longitude (Score-2)
44. International date line is drawn deviated to avoid the land areas and to pass entirely through the ocean. What is the reason? (Score-2)
45. What is the standard meridian of India? What is the time difference between Indian Standard time and Greenwich time ? (Score-2)

**Supporting Matrial**

- Which of the following statement is false?
  - Earth rotates from west to east.
  - Earth takes 24 hours to complete one rotation.
  - In one hour, the sun passes over  $4^{\circ}$  longitudes
  - The sun rises in the east.
- On which day does the sun race fall vertically on tropic of cancer ?  
What is the name of this day?
- What are the features of winter in the Northern Hemisphere?
- Which of the following days is a summer solstice in southern hemisphere?
  - September 23
  - March 21.
  - December22
  - June 21.

**Kollam District Panchayat & General Education Department**

5. Why is  $82\frac{1}{2}^{\circ}$  E longitude considered as the standard meridian of India?
6. Time estimated based on the apex position of the Sun, is termed as .....
7. What is the parallelism of the axis?
8. What are the reasons for the variation in the amount of sun shine received on earth?
9. What are the features of spring in the Northern Hemisphere?
10. Which longitude is considered to be the standard median of India?
11. . . . . is drawn deviated to avoid the land areas and to pass entirely through the ocean.
12. What are the factors that cause seasons?
13. Why is the Greenwich Line called the Prime Meridian?

**Answer key**

1. d. Autumn
2. A. 1 hour B. 24 hour C. 365 Days 6 Hours
3. a) A-  $23^{\circ} 30^{\circ}$ , B-  $66^{\circ} 30^{\circ}$   
b) The axis of the Earth is tilted at an angle of  $66\frac{1}{2}^{\circ}$  from the orbital plane. If measured from the vertical plane this would be  $23\frac{1}{2}^{\circ}$ . The Earth maintains this tilt throughout its revolution. This is known as the parallelism of the Earth's axis.
4. a) Since the parallelism is maintained same throughout the revolution, the position of the Sun in relation to the Earth varies apparently between Tropic of Cancer and Tropic of Capricorn . This is known as the apparent movement of the Sun.  
b) The apparent movement of the Sun, due to the inclination of axis, is the reason for the occurrence of seasons.
5. a) Revolution of earth  
b) Parallelism of earth Axis  
c) Apparent movement of the sun  
d) Seasonal changes
6. a) Less, b) More c) Less  
b. Temperature will be higher over those places where the vertical rays of the sun fall. The temperature will be low at places where the sun's rays are slanting.

**Kollam District Panchayat & General Education Department**

7. Characteristics of different seasons are clearly felt in the mid latitude or temperature zones. Marked as B and D in the frigid zone (A,E) the seasons do not feel significant as the sun's rays are inclined and availability of solar energy is less. Seasonal changes are not usually very obvious in the tropical regions because of the incidence of large amount of sun's rays throughout the year. Marked as - C
8. B. Summer      C. Autumn      D. Winter
9. December 22
10. The apparent position of the Sun during the Earth's revolution will be over the Equator on March 21 and September 23. Hence the length of day and night will be equal during these days on both the hemispheres. These days are called equinoxes
11. From 21 March onwards, the Sun apparently shifts from the Equator northwards and reaches vertically over the Tropic of Cancer on 21 June. This day is known as the Summer Solstice in the Northern Hemisphere. On this day the Northern Hemisphere experiences its longest day and shortest night.
12. The Sun continues its southward apparent shift from the Equator from 23 September and reaches vertically above Tropic of Capricorn ( $23\frac{1}{2}^{\circ}\text{S}$ ) on 22 December. This day is known as Winter Solstice in the Northern Hemisphere. On this day the Northern Hemisphere experiences its shortest day and longest night.
13. a. Spring Season  
b. The period of transition from winter to summer  
Plants sprouting, mango trees blooming and jackfruit trees bearing buds
14. A. Equator  
B. Equinox  
C. June 21  
D. Summer solstice  
E. Equator  
F. Equinox  
G. December 22  
H. Summer Solstice
15. A. Equator  
B. Equal  
C. June 21

**Kollam District Panchayat & General Education Department**

- D. longest
  - E. shortest
  - F. Equator
  - G. Equal
  - H. December 22
  - I. Shortest
  - J. Shortest
16. A. From equator to tropic of cancer
- B. Autumn
  - C. From June 21 to September 23
  - D. Summer
  - E. From Equator to tropic of capricone
  - F. Spring
  - G. From December 22 to March 22
  - H. Winter
17. a. Autumn
- b. Autumn marks the transition from the severity of summer towards winter. During this period, the atmospheric temperature decreases considerably. There is shortening of day and lengthening of night during the period. This is the season during which the trees generally shed their leaves. The shedding of leaves is a form of adaptation to survive the forthcoming dry winter.
  - c. Spring
18. a. Utharayanam
- b. Northward apparent movement of the Sun from Tropic of Capricorn to Tropic of Cancer is termed as 'Utharayanam'. (from December 22 to June 21) (From winter solstice to summer Solstice)
  - c. The duration of day in the northern hemisphere gradually increases during this Utharayanam
19. a. Dakshinayanam
- b. Following the summer solstice, the Sun sets its southward apparent movement from Tropic of Cancer and it culminates on Tropic of Capricorn on 22 December. This southward apparent movement of the Sun from Tropic of Cancer to Tropic of Capricorn is termed as 'Dakshinayanam'. (From summer solstice to winter Solstice)

**Kollam District Panchayat & General Education Department**

- c. The duration of day in the northern hemisphere gradually decrease during this Dakshinayanam
20. A. Northern hemisphere  
 B. North Pole  
 C. South pole  
 D. Southern Hemisphere  
 E. South pole  
 F. North Pole
21. The local time would be different at each longitude. If we start calculating the local time at different places based on the longitude there, it would create a lot of confusion. To solve this, the local time at the longitude that passes through the middle of a country is selected as the common time for the whole country. Each country in the world considers the longitude that passes almost through its middle as the standard meridian. The local time at the standard meridian is the standard time of that country.
22. Greenwich Meridian. The zero degree longitude is known as the Greenwich Meridian. Time is calculated worldwide based on the Greenwich Line. Hence this line is also known as the prime meridian. The local time at the prime meridian is known as the Greenwich Mean Time. International date line -  $180^{\circ}$  longitude If  $180^{\circ}$  longitude passes through a country, the places situated East and West of this line will be having two different days. To avoid practical difficulties, certain necessary adjustments have been effected in this line with the result that it doesn't pass through the corresponding land areas. The travellers who cross this line from the West calculate the time by advancing it by one day and those who cross the line from the west deduct one day.
23. Calcutta, Chennai, Delhi, Mumbai
24. The time required for the Earth to complete the rotation of  $1^{\circ}$  longitude is 4 minutes.  
 Time required to cross the  $30^{\circ}$  longitudinal are is  $30 \times 4 = 120$  minutes - 2 hours
25. Tropic of Cancer – summer, Tropic of Capricorn - winter
26. The longitudinal extent of India is from  $68^{\circ}\text{E}$  to  $97^{\circ}\text{E}$ . The  $82\frac{1}{2}^{\circ}\text{E}$  longitude which passes almost through the middle of these longitudes has been fixed as the standard meridian of India.
27. Spring Season and Autumn Season.
28. c. Value increases towards northwards
29. The longitudinal difference between the places where the children stand is  $68^{\circ}$

## Kollam District Panchayat &amp; General Education Department

There is a time difference of 4 minutes for one degree longitude.

$60 \times 4 = 240$  minutes (4 hours)

Time difference 4 hours

30. c. December 22

31. Standard Meridian of England -  $0^0$

Standard Median of India -  $82\frac{1}{2}^0$  E

Longitudinal Difference -  $82\frac{1}{2}^0$

There is a time difference of 4 minutes for one degree longitude.

Time difference -  $82\frac{1}{2} \times 4 = 330$  Minutes = 5 hours 30 minutes ( 5 hours)

Indian time is five and a half hours ahead of Greenwich Mean Time. Therefore, the live broadcast of the match in England at 8 am will be telecast in India at 1.30 pm.

32. There is variation in the sunlight that falls on the Earth due to the apparent movement of the Sun Revolution of Earth Inclination of earth Axis Parallelism of the Earth's axis

33. Length of day and night will be equal during Equinox. On summer solstice, the Northern Hemisphere experiences its longest day and shortest night. On winter solstice, the Northern Hemisphere experiences its shortest day and longest night.

34. Time estimated at each place, based on the position of the Sun, is termed as the local time.

35. 12 p.m.

36. The earth takes 365 days and 6 hours to complete one revolution. 365 days are included in a normal year and by adding the rest 6 hours together one additional day is included in the fourth year which is in February (29 days).

37. When the sun is over the northern hemisphere northern hemisphere, experiences longer days and shorter nights. When the sun is over the southern hemisphere, then northern hemisphere experience shorter days and longer nights. This causes variations in the time of sunrise and sunset.

38. A. Spring

B. Autumn

C. Summer

D. Winter

The time required for the rotation of  $15^0$  longitudinal area is  $15 \times 4 = 60$  minutes (1 hour).

39. The angular distance of the Earth is  $360^0$ . We will get 360 longitudes if we draw one longitude



### Kollam District Panchayat & General Education Department

each for each degree of angular distance. The time required to complete a  $360^\circ$  rotation is 24 hours. On converting 24 hours into minutes  $24 \times 60 = 1440$  minutes. That is, the time required for the completion of one rotation = 1440 minutes. The time required for the Earth to complete the rotation of  $1^\circ$  longitude is  $1440 / 360 = 4$  minutes.

40. a.  $115^\circ$   
b. 1 hour
41. The Earth rotates from west to east. so the Sun rises in the east and sets in the west. So the time incidences towards east and decreases towards west
42. The countries with large longitudinal extent estimates more than one local time by considering more than one standard meridian. Example - Russia, China, United States.
43. c. International date line
44. There is a time difference of 24 hours between east and west of the international date line. If this line passes through the land, two different days will be experienced in the same populated area.
45.  $82^\circ 30'$  East longitude India's time is 5 hours and 30 minutes ahead of Greenwich Mean Time

### Supporting Material

1. c. In one hour, the sun passes over  $4^\circ$  longitudes
2. Sun rays reaches vertically over the Tropic of Cancer ( $23^\circ 26' N$ ) on 21 June. This day is known as the Summer Solstice in the Northern Hemisphere.
3. The northward apparent shift of the Sun begins by 22 December and again reaches vertically above the Equator on 21 March. This period marks the winter season in the Northern Hemisphere.
4. c. December 22
5. The  $82^\circ 30'$  East longitude passes almost through middle of India
6. Local time
7. The axis of the Earth is tilted at an angle of  $66^\circ 34'$  from the orbital plane. If measured from the vertical plane this would be  $23^\circ 26'$  (Fig.1.1). The Earth maintains this tilt throughout its revolution. This is known as the parallelism of the Earth's axis.
8. The Earth's revolution and the tilt of the axis are the reasons for the variation of sunshine received.
9. The Northern Hemisphere generally experiences spring season between 21 March and 21

**Kollam District Panchayat & General Education Department**

June. Spring is the season of transition from winter to summer. Plants sprouting, mango trees blooming and jack fruit trees bearing buds are the characteristics features of this season.

10.  $82^{\circ} 30^{\circ}$  E longitude
11. International date line ( $180^{\circ}$  longitude)
12. Apparent movement of the sun.  
Earth's Revolution.  
Inclination of the axis.  
Parallelism of earth axis
13. Time anywhere in the world is calculated based on the Greenwich Line.

## Chapter - 2

# In Search of the Source of Wind

### Introduction

Wind is the horizontal movement of air. This chapter is an enquiry into the causes of different types of wind and their effects. In this chapter, In search of the source of wind, children will be able to gain an understanding of the atmosphere and its variations due to Global pressure Belts and Coriolis force.

### CONCEPTS

- ◆ Atmospheric pressure is the weight of atmospheric air
- ◆ Heat, height and humidity are the causes for difference in atmospheric pressure
- ◆ The winds blow in the pressure belts are planetary winds
- ◆ The speed and direction of winds are based on the pressure gradient, Coriolis force and Friction
- ◆ Trade winds, Westerlies, and Polar winds are different planetary winds
- ◆ Sea breeze and land breeze are occur as result of non-equilibrium warming of land and sea.
- ◆ Local winds are caused by a small area pressure difference .
- ◆ Cyclones and anticyclone are examples of variable winds

### Questions

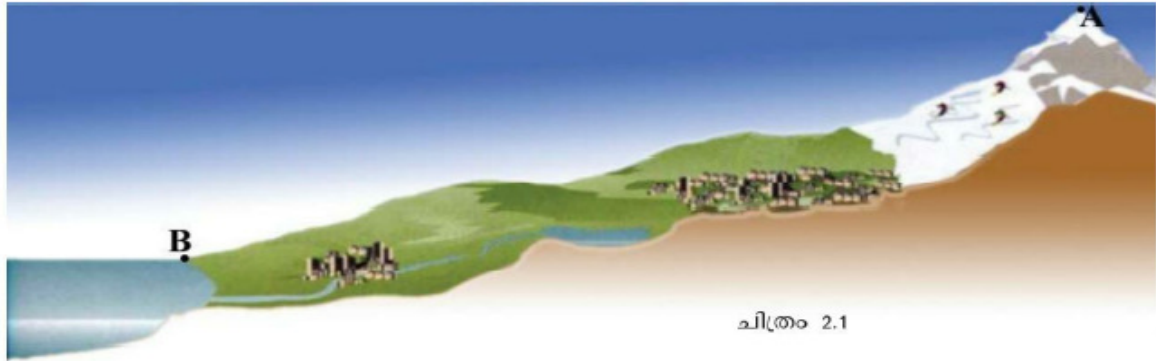
1. What is the average weight of atmospheric air on the earth surface? (1)
2. Instrument used for measuring atmospheric pressure. (1)
3. What are the winds that result from the pressure difference experienced over a small area. (1)
4. Name the area where the trade winds converge. (1)
5. The direction of Westerlies (1)
6. The factor other than heat and humidity which causes pressure difference. (1)

**Kollam District Panchayat & General Education Department**

7. Name the local wind that called "Doctor". (1)
8. The scientist who discovered Coriolis force. (1)
9. Name the pressure belt which is known as Doldrums (1)
10. Name the hot wind blowing in North Indian Plain. (1)
11. Define the following: (1 score each)
  - a) Humidity
  - b) Coriolis force
  - c) Atmospheric pressure
  - d) Isobars
  - e) Cyclones
  - f) Pressure Gradient
  - g) Wind
  - h) High pressure
  - i) Low pressure
  - j) Anticyclones
12. Differentiate the following: (2 score)
  - 1) Mountain and Valley breeze
  - 2) Cyclones and Anticyclones
  - 3) Land breeze and sea breeze
13. Why do mountaineers carry oxygen cylinders? (2)
14. Name the winds continuously blow towards the equatorial low pressure belt. (2)
15. Why you feel clog of ears when travelling to high altitude. (2)
16. Which are the important Monsoon winds?
17. Mountain and valley breeze are variable winds. Which among them blow during the day time? Why? (2)
18. What are the winds blowing from Subtropical high pressure belt? (2)
19. Why the Equatorial low pressure region is known as Doldrums? (2)
20. Why low pressure is felt in the polar region? (2)

**Kollam District Panchayat & General Education Department**

21. The area where the air pressure is highest is marked as A and B. Why? (2)



22. What are the factors that cause the pressure difference? (3)

23. What are the factors that control the speed and direction of wind? (3)

24. What are the factors that cause the formation of monsoon winds? (3)

25. Classify the winds as given in the example: (3)

Cyclones—Variable winds

Trade winds-.....

Föhn- .....

Monsoon wind- .....

26. Briefly explain Mountain breeze and Valley breeze. (4)

27. Complete the table: (4)

Global pressure belts	Latitudinal position
Polar high pressure belt	
Sub polar low pressure belt	
Subtropical high pressure belt	
Equatorial low pressure belt	

28. Briefly explain Cyclones and anticyclones. (4)

## Kollam District Panchayat &amp; General Education Department

29. Complete the table:

(4)

Winds	Blowing time (day/night)
Land breeze	
Sea breeze	
Valley breeze	
Mountain breeze	

30. Explain the global pressure belts based on the indicators given.

(4)

- a. Global pressure belts
- b. Latitudinal position

31. Complete the table

(4)

Local winds	Place of blowing	features
Chinook	a.....	Snow eater
Foehn	b.....	Reducing the severity of cold
Harmattan	Sahara desert	c.....
Loo Rajasthan desert	d.....	

32. Heat, humidity and altitude are inversely proportional to atmospheric pressure'

- substantiate.

(4)

33. Describe the given winds based on the direction and pressure belts.

(5)

- a. Trade winds
- b. Westerlies
- c. Polar easterlies

### Answer Key

1. 1034mg per centimetre square
2. Mercury Barometer
3. Local winds
4. Inter Tropical Convergence Zone (ITCZ)
5. West
6. Altitude
7. Harmattan

**Kollam District Panchayat & General Education Department**

8. Admiral Ferrel
9. Equatorial Low pressure belt
10. Loo
11.
  - a) The quantity of water present in the atmosphere
  - b) The force that cause deflection of the direction of freely moving objects on the earth surface.
  - c) The weight of atmospheric air
  - d) The imaginary lines joining places having the same atmospheric pressure.
  - e) Cyclones are low pressure area surrounded by high pressure areas.
  - f) Pressure gradient is the pressure difference experienced at the horizontal level.
  - g) Horizontal movement of air
  - h) If the pressure in an area is higher than the surroundings, it is high pressure.
  - i) If the pressure in an area is lower than the surroundings, it is low pressure.
  - j) Anticyclones are high pressure area surrounded by low pressure areas.
12.
  - 1). Valley breeze are winds that blow from the relatively lower temperature valley during the day time, as the air at the top of the mountain warms up. But during the night the air in the mountainous region cools and it blows towards the valley, it is mountain breeze.
  - 2) Cyclones are low pressure area surrounded by high pressure areas. Anticyclones are high pressure area surrounded by low pressure areas.
  - 3) During the day, the land heats up rapidly so there low pressure is felt and wind blows from the sea to the land at night, however, the land cools much faster than the sea and experiences high pressure. So wind blow from land to sea.
13. There is a decrease in atmospheric pressure due to the rarification of air with altitude.
14. North east trade wind, South east trade wind
15. This is due to the low pressure in these places.
16. South east monsoon winds and North east Monsoon winds
17. Valley Breeze, Valley breeze are winds that blow from the relatively lower temperature valley during the day time, as the air at the top of the mountain warms up.
18. North east trade wind, South east trade wind
19. The winds here are very weak as the air in the equatorial low pressure area rises massively.
20. The air thrown away due to the rotation of earth.
21. B, The pressure decreases as the height increase.

## Kollam District Panchayat &amp; General Education Department

22. Altitude, heat, humidity
23. Pressure gradient, Friction, Coriolis effect.
24. The apparent movement of the Sun.  
Coriolis force  
Differences in heating
25. Trade winds  
Local winds  
Variable winds
26. The valley winds that blows from the valley to the mountain during the day time Mountain breeze, which blows from the top of the mountain in to the valley at night.
27.  $90^\circ$  North and South  
 $60^\circ$  North and South  
 $30^\circ$  North and South
28. Cyclones are low pressure area surrounded by high pressure area.  
Anticyclones are high pressure area surrounded by low pressure areas.
29. Day time  
At night  
Day time  
At night
- 30.
- |                                |                            |
|--------------------------------|----------------------------|
| Polar high pressure belt       | $90^\circ$ North and South |
| Sub polar low pressure belt    | $60^\circ$ North and South |
| Subtropical high pressure belt | $30^\circ$ North and South |
| Equatorial low pressure belt   | $0^\circ$                  |
31. a. Slope of the Rocky Mountains  
b. Northern slope of the Alps Mountains, c. Doctor, d. Raise the summer temperature.
32. Heat increases pressure decreases  
Humidity increases pressure decreases  
Height increases pressure decreases



**Kollam District Panchayat & General Education Department**

**33. Trade winds**

- ◆ North east in the northern hemisphere
- ◆ South east in the southern hemisphere
- ◆ wind blow towards the equatorial low pressure belt
- ◆ ITCZ

**Westerlies**

- ◆ Wind blows from the subtropical high pressure region
- ◆ direction is from the west.

**Polar Easterlies**

- ◆ The wind blows from the Polar high pressure region
- ◆ Direction is from the east.

**Chapter - 3****Human Resource Development in India****Introduction**

Manpower is an important factor in making goods and services. Therefore human resource is necessary for the progress of any country. In this chapter we examine some aspects of human resource development and its status in India.

**Contents**

- ☐ Human resource.
- ☐ Human resource development.
- ☐ Features of human resource.
- ☐ Size of population.
- ☐ Density of population.
- ☐ Population growth rate in India.
- ☐ Population structure.
- ☐ Education and human resource development.
- ☐ Human resource development and health care.

**Questions**

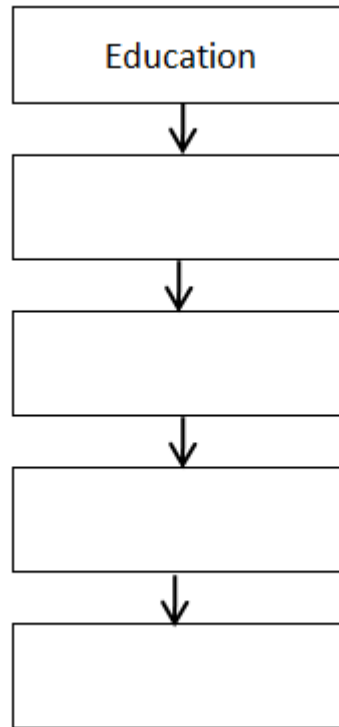
1. What are the different levels of human resource development ? (4)
  - a) Individuals
  - b) Family
  - c) Various institutions and agencies
  - e) Nation
2. What are the quantitative features of human resource? (4)
  - a) Size of population
  - b) Growth of population
  - c) Population structure
  - d) Population density.

**Kollam District Panchayat & General Education Department**

3. What are the qualitative features of human resource? (4)
  - a) Education
  - b) Health care
  - c) Literacy rate
  - d) Life expectancy
4. Why are population studies conducted? (4)
  - a) Informs availability of human resource in a country
  - b) Depicts the extent of basic facilities required by the people.
  - c) Quantifies the goods and services required.
  - d) Determines the socio-economic development policies.
5. What are the advantages in developing human resource (4)
  - a) Productivity of the workers increase
  - b) Economic inequality is reduced
  - c) Entrepreneurship improves
  - d) Natural resources utilized effectively
  - e) Social welfare is ensured
  - f) Makes possible the development and use of advanced technology
6. What are the projects implemented in India to develop education and skills? (4)
  - a) Integrated child development scheme (ICDS)
  - b) Samagra Shiksha Abhiyan (SSA)
  - c) Rashtriya Uchthal Shiksha Abhiyan (RUSA)
  - d) National Skill Development and Monetary Rewards Scheme
7. Examine the problems that still exist in the education sector of India which need to be solved? (3)
  - a) Certain sections drop out from schools without completing primary education.
  - b) There is a lack of availability of basic facilities in the education sector
  - c) Quality of education has to be improved
8. How healthy persons can participate in the progress of a country? (4)
  - a) Production increases with the increase in efficiency and the number of working days.
  - b) Natural resources can be utilised properly.
  - c) Medical expenses can be reduced.
  - d) Economic development is possible through increase in production
9. What were the institutions in India that function to make available quality health services to all (2)
  - a) National Rural Health Mission (NRHM)
  - b) National Urban Health Mission (NUHM)

**Kollam District Panchayat & General Education Department**

10. How education help in the development of a country. Complete the flow chart.



Answer:

- a) Improves the skills of individuals
- b) Better the technological know-how
- c) Helps to secure better job and income
- d) Improves the standard of living

**Supporting Material**

1. What is human resource ?

**Ans:** Human resource refer to people who have the manpower which can be utilized in the production sector

2. What is human resource development?

**Ans:** The development of man's physical and mental abilities through education, healthcare and training.

3. The institutions which conduct population census in India?

**Kollam District Panchayat & General Education Department**

**Ans:** The office of the Population Registrar General and Census Commission.

4. What is population growth?

**Ans:** The increase in the number of people in an area within a specific period of time.

5. What is density of population?

**Ans:** The number of people per square kilometre area.

6. What are the factors that affected the population of a country?

**Ans:** 1. Birth rate

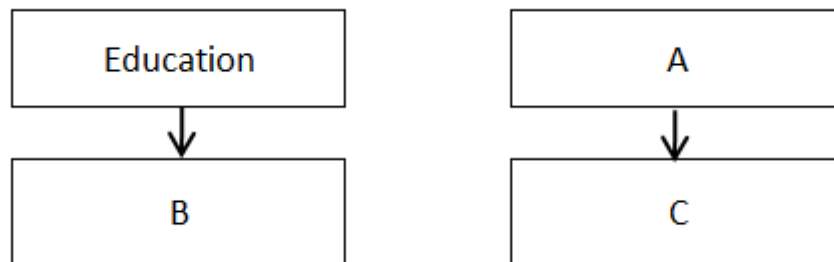
2. Death rate

3. Migration.

7. What is life expectancy?

**Ans:** The expected average year of life of a person lives.

8. Complete the flow chart of qualitative factors of human resource.



**Ans:** a) Health care

b) Literacy rate

c) Life expectancy

## Chapter - 4

# Landscape Analysis through Maps

### Introduction

The development of technology has led to revolutionary changes in data collection and data analysis. Maps are one of the most widely used geography tools in this regard. Everyone from the common man to the scientist relies on maps for everyday needs. Topographic maps are large-scale maps depicting relatively small areas. Topographic maps depict in minute detail all the natural and man made features on the earth's surface. These maps contain the important surface features such as the undulations of the terrain, rivers, other water bodies, forests, agricultural land, barren land, villages, towns, and transport and telecommunication systems.

### Concepts

1. Topographic maps depict in minute detail all the natural and manmade features on the earth's surface
2. Topographic maps are used for analysing physical and the cultural features of the earth surface, for military operations and the preparation of military maps, for economic planning etc
3. In Topographic maps, Toposheets for the whole world have been prepared in several sheets of same size and shape. The whole world is picturised in 2222 sheets.
4. The million sheets covering 4° latitudinal and 4° longitudinal extent are given numbers from 1 to 105. These numbers are known as index numbers.
5. Millionsheets with 1° latitudinal and longitudinal extent is prepared in 1:250000 scale.
6. Each degree sheet has 15' (15 minutes) latitudinal and longitudinal extent and are numbered as 1, 2, 3, .... 16,
7. As the colours and symbols used in the toposheets are internationally accepted, the maps prepared in one country can be easily understood and analysed by the people of another.
8. Eastings and northings are used to identify precise location of minor geographical features in toposheets. The grids formed jointly by the eastings and the northings are called reference grids.

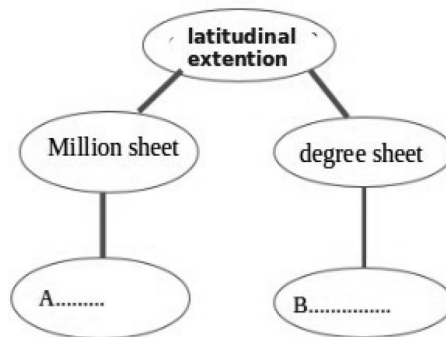
**Kollam District Panchayat & General Education Department**

9. The sizes of the geographic features included in the model grid are not one and the same. Since they differ in size, the location of these features can be found out in two different ways, namely, 4 - figure grid reference and 6 – figure grid reference.
10. Contours are imaginary lines drawn on maps connecting those places having equal elevation from the sea level.
11. The closely spaced contours represent steep slopes and the widely spaced contours represent gentle slopes.
12. Altitude of the place, Nature of the slope, Shape of the landform are can be assessed from the contour lines in topographic maps.
13. If any two places are mutually visible, then we can establish that these places are intervisible.
14. Intervisibility assessment is being applied for erecting electric posts, mobile towers and wireless transmission towers.
15. The general information given outside the margins in topographic maps is known as marginal/ primary information. The toposheet number, name of the area, latitudes and longitudes, values of northings and eastings, scale of the map, contour interval, years of survey and publication and the agency in charge of the survey are the marginal information in the toposheet.
16. Water bodies such as rivers, streams, springs, etc. as well as the different landforms are the physical features in topographic maps.
17. Manmade features such as Settlements, different types of roads, boundaries, places of worship, agricultural lands, post office, police station, bridges, wells and tube wells are a few cultural features shown in toposheets.

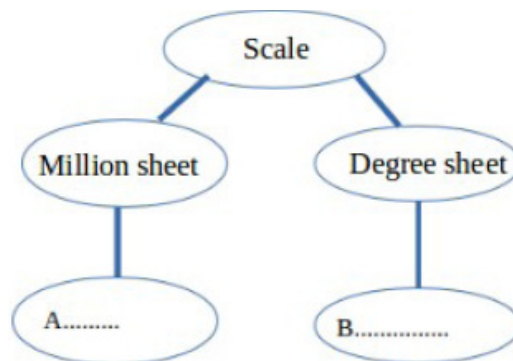
## Kollam District Panchayat &amp; General Education Department

**Questions**

1. Topographic maps depict in minute detail all the natural and manmade features on the earth's surface. What are the uses of topographic maps? (score- 4)
2. 55 K/10 is number of a toposheet.  
 A) What is the scale of this map?  
 B) What do the numbers 55 and K in this map indicate?  
 C) What is the latitudinal and longitudinal extension of the area on this map? (score- 4)
3. Complete the diagram: (score- 2)



4. Complete the diagram: (score- 2)



5. Based on the following information, write the number of the topographic map. (score-2)

Million sheet - 35

Degree sheet- E






1	5	9	13
2	6	10	14
3		11	15
4	8	12	16



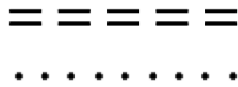
**Kollam District Panchayat & General Education Department**

6. Complete the table

(score 4)

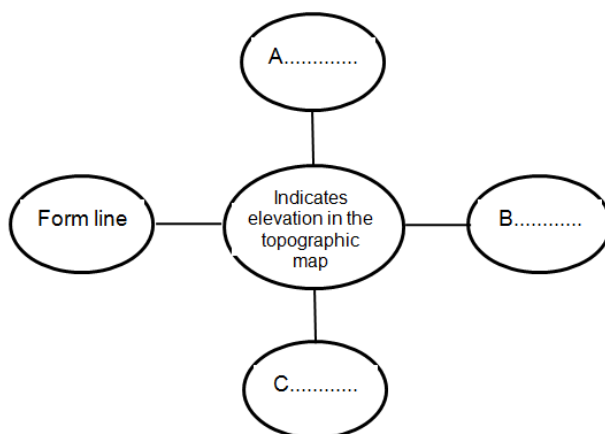
Signs and symbols	Geographic features
	A.....
	B. Permanent house
	C.....
	D.....
	E.....

7. The symbols largely used in a toposheet to represent the transport are given. What is your inference regarding the transport facilities in that region? (score-1)



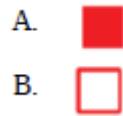
- Tarred road is widespread.
- It is an area with excellent transport facilities
- Train transportation is widespread.
- Transportation facilities needs to be improved.

8. Complete the word web:

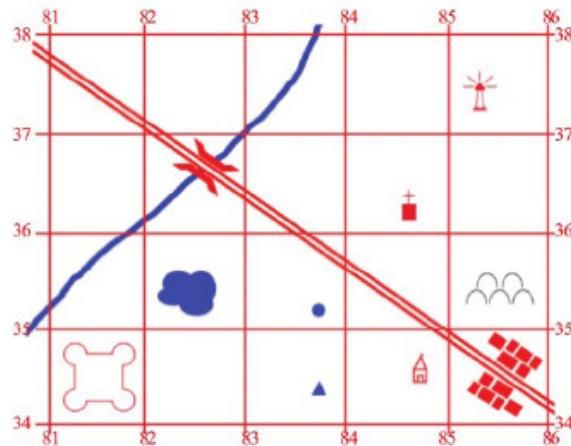


## Kollam District Panchayat &amp; General Education Department

9. The following are symbols of Settlements, which are used in topographic maps. What is the difference between the geographical features they indicate? (score-2)

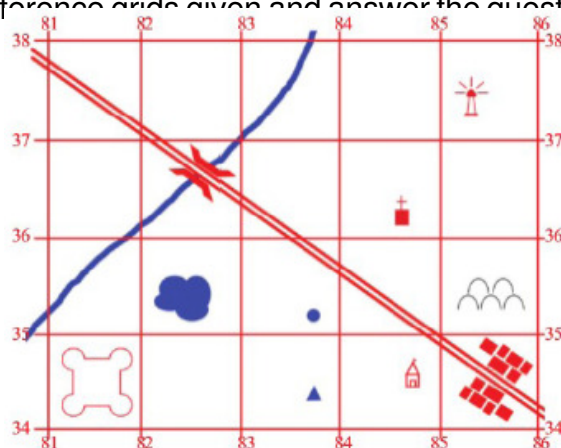


10. Analyse the model reactions below. (score-5)



- Write the six figure grid reference of tube well
- Write the four figure grid reference of the church.
- What is the geographical feature found at 8535 Grid Reference?

11. Analyse the model reference grids given and answer the questions below.



- A) What kind of road do you see in it?  
B) Which worshiping place is located on the south side of the road?

### Kollam District Panchayat & General Education Department

Write its four figure grid reference.

(score-3)

12. What can be assessed with the help of contour lines?

(score-3)

13. The following are the informations found on a topographic map.

List them as Primary information, Physical features, and Cultural features.

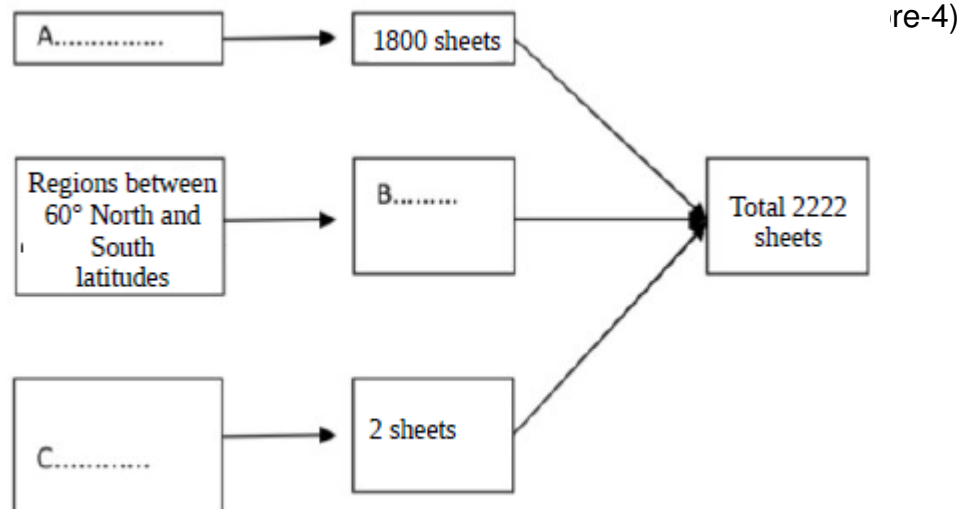
(Toposheet number, Stream, Bridge, Church, Contour Interval, River)			(score 3)
Primary information	Physical features	Cultural features	
1. Toposheet number	1. Stream	1. Bridge	
2.	2.	2.	

14. List the geographic features below, based on the color seen on the topographic map.

Contour lines, settlements, grasslands, ponds				(score-4)
blue	green	red	brown	

15. In the topographical map, the world as a whole is depicted in 2222 sheets.

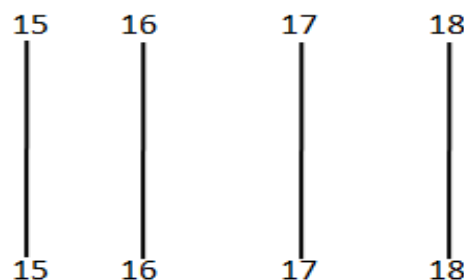
Based on the stat



16. As indicated in the picture, by what name is the line on the topographic map known?

What are their characteristic

(score-4)



## Kollam District Panchayat &amp; General Education Department

17. Select the appropriate landform for the contour line.

( score-1)



18. The contour line of the two places A and B are given.

Compare the slopes of the two land forms

( score-2)



19. What is the difference between contour values and contour intervals?

( score-4)

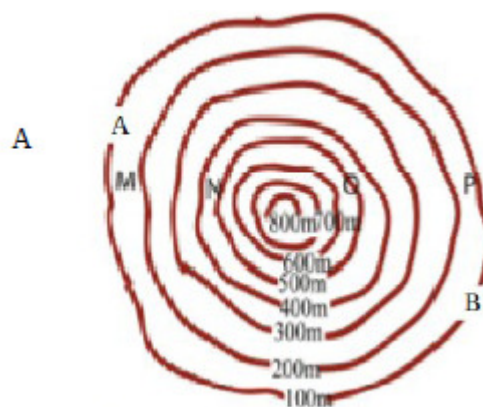
20. A) Check the inter visibility between the places Marked as A and B in the contour line below

B) What informations a

two places?

C) How can we use inte

( score-5)

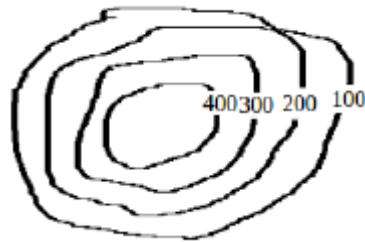


**Kollam District Panchayat & General Education Department**

21. What do the following represent on a topographic map?

IB,PO,RH,TO

22.



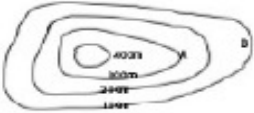

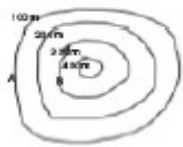
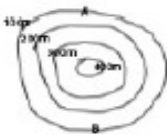
A) What is the colour of Contour Lines in a topographic maps?

B) The numbers indicated in the above contour are called.....

C) What is the contour interval in the above contour line? ( score-3)

23. Examine the contour lines below and note whether there is inter visibility between points A and B marked.



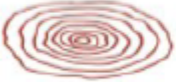

## Kollam District Panchayat &amp; General Education Department

	contour lines	Intervisibility yes/no
A		A.....
B		B.....
C		C.....
D		D.....

24. Arrange the items in B,C and D columns suitable to column A

(score- 6)


**Kollam District Panchayat & General Education Department**

A	B	C	D
	Reserve forest	Monuments and buildings	Red
	Contour lines	Waterbodies	Brown
	Fort	Vegetation	Green
	River	Elevation	Blue

25. What are the basic concepts necessary for reading a topographic map?

26 Complete by adding the appropriate ones to the list below:

(Man-made features, general information, landforms)

Primary information A.....

Physical features B.....

Cultural features C.....

## Kollam District Panchayat &amp; General Education Department

**SUPPORTING MATERIAL**

1. Map depicting all natural and man-made surface features is known as..... ( score-1)
2. Which agency prepares topographic map of India? ( score-1)
3. In topographic map the whole world is picturised in how many sheets ? ( score-1)
4. What is the name of east-west line marked in topographic map?  
What are their features? ( score-4)
5. What is a reference grid? Explain. ( score-3)
6. Write the Numbers denoting Northing from the grid reference below. ( score-1)  
827255
7. What are contour lines? ( score-2)
8. What are the uses of topographic maps? ( score-4)
9. Write the Numbers denoting Easting from the Grid Reference below ( score-1)  
847232
10. What is the primary information on a topographic map? ( score-2)


**Answer key**



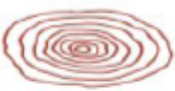

1. a. For military operations and the preparation of military maps.  
b. Analysis of the physical and the cultural features of the earth surface.  
c. Identification and studying of the natural and the cultural resources of a region as part of economic planning.  
d. For urban planning.
2. A) 1:50000  
B) 55 – Million sheet, K- Degree sheet.  
C) 15" (15 minutes) longitudinal and latitudinal extension.
3. A.  $4^0 \times 4^0$  B.  $1^0 \times 1^0$
4. A. 1 : 1000000 B. 1: 250000
5. 35 E/7
6. A. Reserve Forest C. Tube well D. Spring E. Grave



### Kollam District Panchayat & General Education Department

7. D) Transportation facilities needs to be improved.
8. A. Contour lines B. Spot hight C. Triangulated height / Benchmark
9. A. Permanent house B. Temporary house
10. A. 837343 B. 8436 C. Grave
11. A) Metalled road  
B) Temple, 8434
12. • Altitude of the place  
• Nature of the slope  
• Shape of the landform
- 13.

Primary information      Physical features      Cultural features  
1. Toposheet number      1. Stream      1. Bridge

	A	B	C	D
14.		<b>Rivers</b>	<b>Water bodies</b>	<b>Blue</b>
15. A) B) C)		<b>Fort</b>	<b>Monuments and buildings</b>	<b>Red</b>
16. E • 1 • 1 • 1 id		<b>Contours lines</b>	<b>Elevation</b>	<b>Brown</b>
17. B				
18. A) B)		<b>Reserve Forest</b>	<b>Vegetation</b>	<b>Green</b>
19. C A re				

ed for

el. The  
es.

**Kollam District Panchayat & General Education Department**

20. A) No inter-visibility  
B) relief, the slope of the region  
C) erecting electric posts, mobile towers and wireless transmission towers.

21. IB - Inspection bungalow

PO - Post office

RH - Rest house

TO - Telegraph office

22. A) Brown  
B) Contours value  
C) 100

23. A. Yes B. No C. Yes D. No

24.

25. A thorough knowledge of the numbering scheme, location signs and symbols, the elevation and slope of the terrain, and the methods of their representation are very essential for comprehending topographic maps.

26. A. General information

**Kollam District Panchayat & General Education Department****Chapter - 5****Public Expenditure and Public Revenue****Introduction**

The Government undertakes many activities for the welfare of the people. Money is required for all these activities. Expenditure incurred by the Government is known as public expenditure. The income to meet this expenditure is known as public revenue.

**Contents**

- ☐ Classification of public expenditure
- ☐ Public revenue.
- ☐ Types of taxes
- ☐ GST
- ☐ Surcharge and Cess
- ☐ Sources of non tax revenue
- ☐ Public debt
- ☐ Public finance
- ☐ Budget
- ☐ fiscal policy

**Questions**

1. Examine the classification of public expenditure. (Score-4)  
**Ans:** a) The expenditure incurred by the government for constructing roads, bridges and harbours, starting up new enterprises, setting up educational institutions are considered as developmental expenditure.  
b) Expenditure incurred for war, interest, pension etc. are considered as non-developmental expenditure.
2. What are the features of direct tax and indirect tax? (Score-4)  
**Ans:** ♦Direct Tax: The burden of tax is borne by the same person on whom tax is imposed.  
♦The tax payer undertakes the burden of the tax. eg. personal income tax, Corporate tax

**Kollam District Panchayat & General Education Department**

♦ Indirect Tax: The tax burden can be shifted from the person on whom it is imposed to another person.

♦ Tax burden is not felt by the tax payer eg. GST.

4. What are the recommendations of GST council?

**Ans:** a) Taxes, Cess and surcharges that are to be merged in to GST (Score-4)

b) The Goods and Services that are to be brought under GST.

c) Determining GST rate.

d) The time frame for including excluded items in to GST

5. Examine the difference between surcharge and cess? (Score-4)

**Ans:** *Surcharge:*

a) It is an additional tax on tax amount

b) This is imposed for a certain period of time.

*Cess:*

a) It is an additional tax for meeting some special purpose of government.

b) Cess is withdrawn once sufficient revenue is collected.

6. Explain internal debt and external debt? (Score-4)

**Ans:** *Internal Debt:*

a) Internal debts are the loans availed by the government from individuals and institutions within the country.

*External Debt:*

a) External debts are the loans availed from foreign governments and international institutions

7. What are the reasons for the increasing India's public debt? (Score-4)

**Ans:** a) Increased defence expenditure.

b) Increase in population

c) Social welfare activities

d) Developmental activities

8. What is budget, what are the different types of budget? (Score-4)

**Ans:** a) Budget is the financial statement showing the expected income and expenditure of the government during a financial year.

b) Balanced budget → Income = expenditure

c) Surplus budget → Income > expenditure

## Kollam District Panchayat &amp; General Education Department

d) Deficit budget → Income < expenditure (Score-4)

9. What is fiscal policy, What are the goals of fiscal policy?

**Ans:** a) Government policy regarding public revenue, public expenditure and public debt is called fiscal policy

- b) Attain economic stability
- c) Create employment opportunities
- d) Control unnecessary expenditure

10. List the central, state, and local self government taxes.

Central Government	State Government	Local self Government
<ul style="list-style-type: none"> <li>♦</li> <li>♦</li> <li>♦</li> <li>♦</li> </ul>		

**Ans:**

Central Government

- ♦ Corporate Tax
- ♦ Personal income tax
- ♦ Central GST
- ♦ Integrated GST

State Government

- ♦ Land Tax
- ♦ Stamp Duty
- ♦ State GST

Local self Government

- ♦ Property tax
- ♦ Professional tax

## Supporting Material

1. What are the sources of revenue to the government?

**Ans:** a) Tax revenue

b) Non tax revenue

2. What are the major direct taxes in India ?

**Ans:** a) Personal income tax

b) Corporate tax

3. What are the different types of GST?

**Ans:** a) Central GST

**Kollam District Panchayat & General Education Department**

b) State GST

c) Integrated GST

4. What are the sources of non-tax revenue?

**Ans:** a) Fees

b) Fines and penalties

c) Grants

d) Interest

e) Profit

5. The financial year of India?

**Ans:** April 1st to March 31st

6. What is public finance?

**Ans:** Public finance is the branch of economics that relates to public income, public expenditure and public debt.

7. What are the different types of budget?

- ♦ Balanced budget
- ♦ Surplus budget
- ♦ Deficit budget

8. What are the two types of public debt?

- ♦ Internal debt
- ♦ External debt

9. What are the two sources of income to the Government with taxes?

- ♦ Surcharge
- ♦ Cess

10. What are the taxes imposed by local self Government in India?

- ♦ Property tax
- ♦ Professional tax

**Chapter - 6**

# Eyes in the Sky and Analysis of information

**Introduction**

The world is fast leaping towards progress. The relentless quest for knowledge and the untiring efforts of man are the base for all these advancements. New discoveries and advancements in technology have made human life better. The advancements in the field of science and technology have made information gathering, map making, and subsequent analysis easier and more efficient. Through this lesson we can understand how the launching of satellites and the use of computer softwares for the analysis of geo-spatial data make learning geography more human centred.

**Contents**

1. Method of collecting information about an object, place or phenomenon without actual physical contact is remote sensing.
2. Devices used for data collection in remote sensing are called sensors. Cameras and scanners are sensors.
3. The carrier on which sensors are fixed is called a platform.
4. Based on the source of energy remote sensing can be classified as Passive Remote Sensing and Active Remote Sensing
5. Remote Sensing is carried out with the help of solar energy is known as passive remote sensing. Here the sensors do not emit energy by itself.
6. Remote Sensing made with the aid of artificial source of energy radiating from the sensor is known as active remote sensing.
7. Based on the platform remote sensing can be classified as Terrestrial Photography Aerial Remote Sensing and Satellite Remote Sensing.
8. The method of obtaining the earth's topography using cameras from the ground is known as terrestrial photography.
9. The method of obtaining photographs of the earth's surface continuously from the sky by using cameras mounted on air crafts is known as aerial remote sensing.

**Kollam District Panchayat & General Education Department**

10. The process of gathering information using the sensors installed in artificial satellites is known as satellite remote sensing
11. Aerial remote sensing is generally used to gather information about comparatively smaller areas. The advantage of aerial remote sensing is that information of any region can be gathered in accordance with our requirements.
12. In each aerial photograph, nearly 60% of the places depicted in the adjacent photo is included. This is done for ensuring contiguity and to obtain three dimensional vision with the help of stereoscope. This is called overlap in aerial photographs.
13. The instrument which is used to obtain three dimensional view from the stereo pairs is called stereoscope
14. The process of collecting information using sensors fixed on artificial satellites is called satellite remote sensing. The artificial satellites are mainly divided into two types: Geostationary satellites and Sun Synchronous satellites.
15. The amount of reflected energy by each object is called the spectral signature of that object.
16. Geographic Information System is a computer based information management system by which the data collected from the sources of information like maps, aerial photographs, satellite imageries, tables, surveys etc. are incorporated in to the computer using softwares, which are retrieved, analyzed and displayed in the form of maps, tables and graphs.
17. Overlay analysis is used for understanding the mutual relationship among the various features on the earth's surface and the periodic changes undergone by them. Overlay analysis helpful in understanding the changes in the area of crops, the changes in land use etc.
18. A circular zone created around a point feature or a parallel zone created aside a linear feature in buffer analysis is called buffer zone.
19. The possibilities of network analysis can be used to find out the easiest and less congested roads from one place to another.
20. The Global Positioning System helps sensing the latitudinal and longitudinal location and elevation of objects on the earth's surface along with the corresponding time.



**Kollam District Panchayat & General Education Department****Questions**

1. Which analytical technique in Geographic Information System can be used to understand the change in crop in your area? What are the features of this analytical possibility?
2. Network analysis, buffer analysis and overlay analysis are the important analytical capabilities of GIS. Examine the statement and answer the following questions.
  - A. Which analytical capabilities in the Geographic Information System would you use to find the easiest route from school to any tourist centre?
  - B. The land needs to be acquired for the airport development project. Which analytical capability would you apply?
3. Which of the following statements is the correct ?
  - a) Remote sensing done with the help of solar energy is known as Active Remote Sensing
  - b) Remote sensing done with the aid of artificial sources of energy is known as active remote sensing.
4. Instruments used for data collection through remote sensing are called.
  - a) Global Positioning System (GPS) b. Sensors c Stereoscope d) Platform
5. Which of the following statement is correct?
  - a) Airplanes and balloons are examples of sensors
  - b) The surface on which the sensors are placed is called the platform
  - c) Direct remote sensing is a remote sensing that is done with the help of solar energy
  - d) The orbit of the geostationary satellites is about 900 km above the Earth today
7. Picture is an instrument that provides three dimensional views from aerial photographs. What is the name of this device?
6. Which of the following analytical capabilities of GIS can be used to understand the change in crop in your area?
  - a) Overlay Analysis
  - b) Network Analysis
  - c) Buffer Analysis



## Kollam District Panchayat &amp; General Education Department

7. What is the analytical capabilities of GIS can be used to find a less congested route in times of road traffic disruption?



8.



From the images given above, Identify and write the name of remote sensing is generally used to gather clear information about comparatively smaller areas.

9. What is the analytical capability used for analyzing the activities around a point feature or at a definite distance along a linear feature
10. Which of the following is not a platform?  
(Aircraft, balloon, satellites, scanner)
11. Nowadays satellite-based tracking systems are used for monitoring the location and movement of objects on the earth's surface.. Write the name of such satellite-based tracking system
12. Which of the following is a geostationary satellite?  
(IRS, Landsat, INSAT)
13. Each object on the surface of the earth reflects electromagnetic radiation differently. The amount of energy reflected by each object is its.....
14. Find the correct statement below.
- INSAT series satellites launched by India are Sun synchronous satellites
  - IRS series satellites launched by India are Sun synchronous satellites

**Kollam District Panchayat & General Education Department**

15. Write the name of Artificial satellites which are used for telecommunication ?

**Answer the following questions in 2 marks?**

16. What are the two kind of remote sensing based on the source of the energy?

17. Write two advantages of Aerial remote sensing ?

18. In each aerial photograph, nearly 60% repetition of the places areas in adjacent

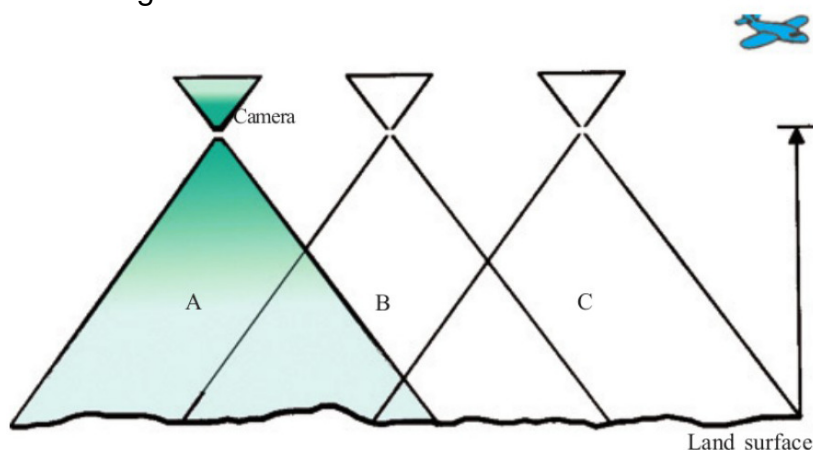
a) this repetition called?

b) Why aerial photograph depicted in this way?

19. What is the difference between stereoscopy and stereoscopic vision?

20. Two kinds of data are necessary for data analysis in Geographic Information System.  
Which are them?

21. Explain what the image indicates



22. The characteristics of Geostationary and Sun synchronous satellites are given below.

List in the appropriate columns

(Score- 3)

Mainly utilized for remote sensing

The orbit of is about 1000 kilometres below the earth's surface.

Repetitive data collection is possible.

Orbit the earth at an elevation of about 36000 kilometres above the earth.

It is used in telecommunication and for weather studies.

Used data for collection on natural resources, land use, ground water, etc.

Geostationary satellites	Sun synchronous satellites
•	•
•	•
•	•

## Kollam District Panchayat &amp; General Education Department

23. Based on the platform, classified remote sensing and write their difference?
- 24 'Picturisation of large areas is not practical 'is one of the limitations of aerial photograph  
What are the other limitations?
25. The picture shows the movement of an artificial satellite around the earth.



26. A. What type of satellite is this?  
B. How far is the orbit of this satellite from the Earth's surface?  
C. What is the use of such satellites?
26. Find and write the correct statements
- a) Satellite Remote sensing is the method of collecting information about an object, place or phenomenon with the aid of satellites without actual physical contact
  - b) Remote sensing done with the help of solar energy is known as active remote sensing.
- i. 'a', 'b' and 'c' are correct
  - ii. 'a', 'b' and 'd' are correct
  - iii. 'a', 'c' and 'd' are correct
  - iv. 'a', 'b' and 'c' are correct
27. What is satellite remote sensing? How artificial satellites can be classified?
28. Layers are very important in Geographic Information System 'Describe
29. Explain the classification of remote sensing based on the source of energy.
30. Now a days we often hear about The Global Positioning System ? Prepare a description of this system
31. Which Analytical capabilities of GIS can be used to understand the change in crop area in your area? What are the features of this analytical capability?

**Kollam District Panchayat & General Education Department**

32.



Above is a pair of overlapping aerial photographs

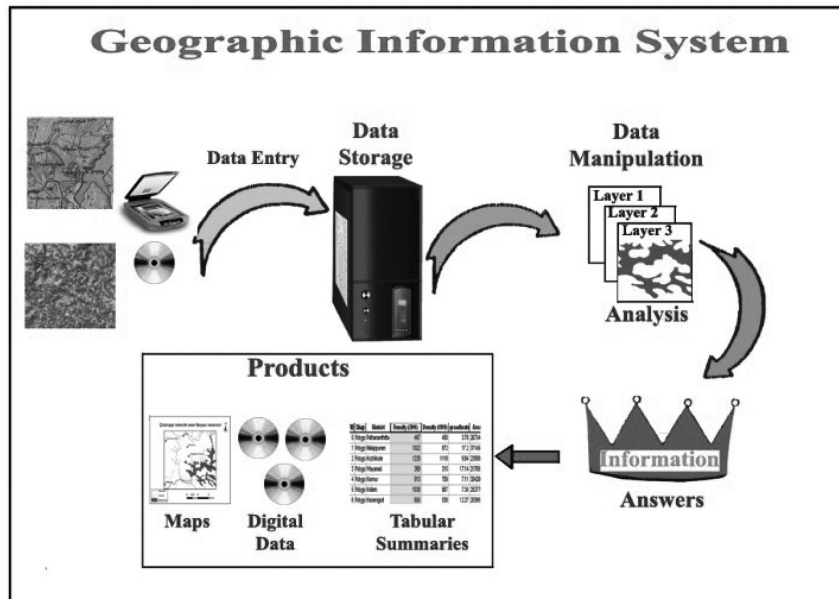
- These aerial photographs are known as?
  - Which instrument that provides three dimensional views from such photographs?
  - What is the name of the three dimensional image obtained with the help of the device?
33. Write the answer based on the following hints?
- the size of the smallest object on the surface that a sensor can detect
  - the amount of energy reflected by each object
  - Scanners mounted on the artificial satellites recognize the different objects and analysed with the help of computers and transformed into images. These are known as.....

**Answer the following questions in 4 marks?**

34. 'Though aerial photographs have several merits, they have some limitations as well.' Explain.
35. Write any four features of geostationary satellites?
36. How Sun synchronous satellites different from geostationary satellites?
37. The following is one of the uses of remote sensing technology Given. Write the other four uses  
For oil exploration
38. What kind of Analytical capabilities of GIS can be used in the following contexts? What is the feature of the analysis used in this way?
- To find houses within a 3 km radius of a school.
  - To find the shortest travel distance

## Kollam District Panchayat &amp; General Education Department

39. Describe the various stages of the geographical system with the help of diagram



40.



Above is a picture of the ground taken from the sky with the help of cameras mounted on the plane. Write down the two advantages and disadvantages of this remote sensing method ?

41. Suppose you intend to place a board banning horn within 500 meters around your school.

Which of the following Analytical capabilities of GIS can be used here?

What are the other analytical capabilities of of GIS ?

**Answer the following questions in 5 marks**

42. What are the characteristics of satellites revolving around the earth along the Poles?

**Answer the following questions in 6 marks**

43. One of the use of Geographic Information System (GIS) prepare maps, tables, and graphs  
Write other uses?

44. Remote Sensing Technology is very useful to human beings'.explain

## Kollam District Panchayat & General Education Department

### Answers

1. Overlay analysis is used to identify the interrelationship of various surface features on earth and the changes they have undergone over a period of time.
2. Network Analysis  
Overlay analysis
3. a) Remote sensing done with the help of solar energy is known as passive remote sensing.
4. b) Sensors
5. b) The surface on which the sensors are placed is called the platform
6. Active Remote Sensing
7. Stereoscope
8. Aerial remote sensing is generally used to gather information about comparatively smaller areas.
9. Buffer Analysis
10. Scanner
11. Global Positioning System (GPS)
12. INSAT
13. Spectral signature
14. b. IRS series satellites launched by India are Sun synchronous satellites
15. Geostationary satellites
16. Passive Remote Sensing    Active Remote Sensing
17. The advantage of aerial remote sensing is that information of any region can be gathered in accordance with our requirements. Another merit of this method is that contiguous pictures of the areas along the path of the air crafts are made available.
18. a. Overlap in aerial photographs.  
b. This is done for ensuring contiguity and to obtain three dimensional vision with the help of stereoscope.
19. Two such photographs of adjoining areas with overlap are called a stereo pair. The instrument which is used to obtain three dimensional view from the stereo pairs is called stereoscope. When viewed through a stereo scope, we get a three dimensional view of the area depicted in the stereo pair. Such a three dimensional view obtained is called Stereoscopic vision.
20. 1. Spatial data, Attributes

## Kollam District Panchayat &amp; General Education Department

21. In each aerial photograph, nearly 60% of the places depicted in the adjacent photo is included. This is done for ensuring contiguity and to obtain three dimensional vision with the help of stereoscope. This is called overlap in aerial photographs.
22. **Geostationary satellites**  
 Repetitive data collection is possible.  
 Orbit the earth at an elevation of about 36000 kilometres above the earth.  
 It is used in telecommunication and for weather studies.
- Sun synchronous satellites**  
 Mainly utilized for remote sensing  
 The orbit of is about 1000 kilometres below the earth's surface.  
 Used data for collection on natural resources, land use, ground water, etc.
23. Based on the platform remote sensing can be classified as Terrestrial Photography.  
 Aerial Remote Sensing and Satellite Remote Sensing.  
 The method of obtaining the earth's topography using cameras from the ground is known as terrestrial photography. The method of obtaining photographs of the earth's surface continuously from the sky by using cameras mounted on air crafts is known as aerial remote sensing.  
 The process of gathering information using the sensors installed in artificial satellites is known as satellite remote sensing
24. The shaking of air crafts affects the quality of photos.  
 The aircraft require open space for take off and landing.  
 It is not practical to take photographs of regions that are vast and extensive.  
 Landing the air crafts frequently for refuelling increases the cost.
25. A. Sun synchronous satellites  
 B. The orbit of these satellites is about 900 km in altitude.  
 C. The repetitive collection of information of a region at regular interval is possible.  
 Used for the collection of data on natural resources, land use, ground water etc.  
 These satellites are mainly used for remote sensing purposes.
26. ii) 'a' and 'b' and 'd' are true
27. The process of collecting information using sensors fixed on artificial satellites is called satellite remote sensing. The artificial satellites are mainly divided into two types: Geostationary satellites and Sun Synchronous satellites.
28. The thematic maps prepared and stored in Geographic Information System for analytical



## Kollam District Panchayat & General Education Department

purpose are called layers. The spatial relationship among the features on the surface of the earth can easily be understood by analyzing the appropriate layers.

29. Based on the source of energy remote sensing can be classified as Passive Remote Sensing and Active Remote Sensing. Remote Sensing is carried out with the help of solar energy is known as passive remote sensing. Here the sensors do not emit energy by itself.

Remote Sensing made with the aid of artificial source of energy radiating from the sensor is known as active remote sensing.

30. The Global Positioning System helps sensing the latitudinal and longitudinal location and elevation of objects on the earth's surface along with the corresponding time. In this system a series of 24 satellites placed at six different orbits between the altitudes 20000 and 20200 km above the earth's surface locate objects. We can locate places with the help of the signals received from the satellites in our handheld device. The GPS requires signals from at least four satellites to display information like the latitude, longitude, elevation, time, etc. in it.

### 31. **Overlay Analysis**

Overlay analysis is used for understanding the mutual relationship among the various features on the earth's surface and the periodic changes undergone by them. Overlay analysis is helpful in understanding the changes in the area of crops, the changes in land use etc.

32. a. Stereo pair  
b. Stereoscope  
c. Stereoscopic vision
33. a. Spatial resolution    b. Spectral signature    c. Satellite imageries
34. The shaking of air crafts affects the quality of photos.

The aircraft require open space for take off and landing.

It is not practical to take photographs of regions that are vast and extensive.

Landing the air crafts frequently for refuelling increases the cost.

### 35. **Geostationary satellites**

These are the satellites that move in equal velocity with the earth's rotation.

Repetitive data collection is possible.

Orbit the earth at an elevation of about 36000 kilometres above the earth.

One third of the earth comes under its field of view.

It is used in telecommunication and for weather studies.

**Kollam District Panchayat & General Education Department****36. Geostationary satellites**

Repetitive data collection is possible.

Orbit the earth at an elevation of about 36000 kilometres above the earth.

It is used in telecommunication and for weather studies.

**37. Sun synchronous satellites**

Mainly utilized for remote sensing

The orbit of these satellites is about 900 km in altitude.

Used data for collection on natural resources, land use, ground water, etc.

**38. For the assessment of weather and its observations**

To understand the land use of an area.

For the monitoring of flood and drought

For identifying forest fires in deep forests and to adopt controlling measures

To collect data regarding the extent of crops and spread of pest attack

For oil explorations

To locate ground water potential places

**39. Buffer Analysis**

A. Circular zone created around a point feature or a parallel zone created aside a linear feature and subjected to analyzing

B. Network analysis

network analysis deals only with linear features on a map. Linear features include roads, railways lines and rivers etc. The possibilities of network analysis can be used to find out the easiest and less congested roads from one place to another.

**40. Geographic Information System is a computer based information management system by which the data collected from the sources of information like maps, aerial photographs, satellite imageries, tables, surveys etc. are incorporated in to the computer using softwares, which are retrieved, analyzed and displayed in the form of maps, tables and graphs. Entering basic data in to computer using data input devices like CDs' and Scanners is the first step. Various layers can be created based on the collected data with the help of Geographic Information System softwares. The analyzed data can be converted in accordance with our needs in to products either in the form of maps, tables or digital data. All data analysis with GIS are done based on two kinds of data- Spatial data and Attributes.****41. Aerial remote sensing is generally used to gather information about comparatively smaller**

## Kollam District Panchayat & General Education Department

areas. The advantage of aerial remote sensing is that information of any region can be gathered in accordance with our requirements. Another merit of this method is that contiguous pictures of the areas along the path of the air crafts are made available.

### **Disadvantages**

The shaking of air crafts affects the quality of photos.

The aircraft require open space for take off and landing.

It is not practical to take photographs of regions that are vast and extensive.

Landing the air crafts frequently for refueling increases the cost.

### **42. Buffer Analysis**

Circular zone created around a point feature or a parallel zone created aside a linear feature and subjected to analyzing . A circular zone created around a point feature or a parallel zone created aside a linear feature in buffer analysis is called buffer zone.

### **43. Sun synchronous satellites**

The orbit of these satellites is about 900 km in altitude.

The repetitive collection of information of a region at regular interval is possible.

Used for the collection of data on natural resources, land use, ground water etc.

These satellites are mainly used for remote sensing purposes.

Satellites in IRS, Landsat series are examples of sun synchronous satellites.

### **44. Compile data from different sources update and incorporate data easily**

Conduct thematic studies

Represent geographic features spatially

Generate visual models of future phenomena and processes based on the data collected  
prepare maps, tables, and graphs

### **45. For the assessment of weather and its observations**

For ocean explorations

To understand the land use of an area.

For the monitoring of flood and drought

For identifying forest fires in deep forests and to adopt controlling measures

To collect data regarding the extent of crops and spread of pest attack

For oil explorations

To locate ground water potential places

**Kollam District Panchayat & General Education Department**

## **Chapter-7**

# **India : The land of Diversities**

### **Introduction**

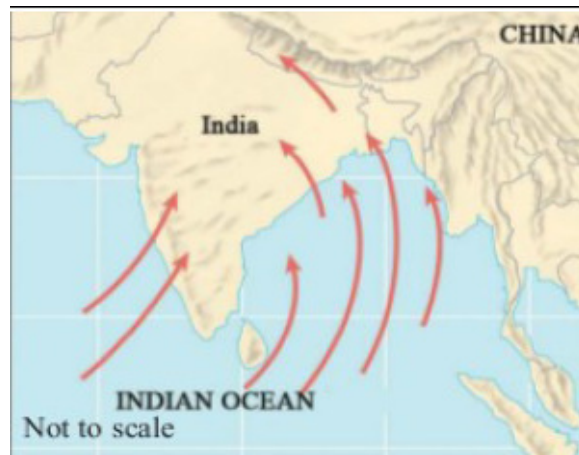
India's geography, climate, way of life and culture are diverse in all areas. In addition, the world map, political map of India, cultural map and river system are explained in this section.

**Kollam District Panchayat & General Education Department****Answer the following questions (score 1)**

- 1) Find out the correct one in the following statements
  - \* Fertile black soils are common throughout the northern highlands.
  - \* Bhima and Tungabhadra are the tributaries of the river Krishna
  - \* Widespread mountain soils in the Deccan Plateau
  - \* Chenab is the tributary of the Brahmaputra
- 2) Which region is called the 'store house of minerals.'?  
(Northern Mountains, Peninsular Plateau, Northern Plateau Coastal Plains)
- 3) Which is the highest peak in the peninsular plateau?  
(Kanchenjunga, Godwin Austin, Anamudi, Nanda Devi)
- 4) Which of the following is not a Himalayan river?  
(Indus, Cauvery, Ganges, Brahmaputra)
- 5) Capital of Lakshadweep.  
(Kavaratti, Port Blair, Agatti, Minicoy)
- 6) Southernmost tip of India is known as ?
- 7) Write the correct statement in the statements below
  - \* Everest is the highest peak in India
  - \* Mount K2 is the highest peak in India
- 8) In which season is the phenomenon of western disturbance felt?  
(a, Summer b, Southwest monsoon season, c, Winter d Monsoon retreat season)
- 9) Most parts of the state of Rajasthan are desert. Why?
- 10) Write 2 examples of local winds blowing in summer.
- 11) Which is the only volcano in India?
- 12) Which landscape is known as 'India's granary'?  
(Northern Highlands, Peninsular Plateau, Northern Great Plains, Coastal Plains)
- 13) Which soil type is suitable for cotton cultivation.  
(Black soil, red soil, laterite soil, mountain soil)
- 14) Write down which Himalayan range from hint
  - a. Average elevation 6000 m
  - b. Origin of Ganga and Yamuna rivers
- 15) Indicate which section of the North Mountain region
  - \* Karakoram, Ladakh, and Saskatchewan
  - \* The average elevation is 6000 m?

## Kollam District Panchayat &amp; General Education Department

- 16) Cherrapunji, the wettest place in the world, is located in the northern part of the country  
(Trans Himalayas, Himalayas, Eastern Highlands Peninsular Plateau)
- 17) Which of the following is not a part of the Trans Himalayas?  
(Karakoram, Himadri, Ladakh, Saskar)
- 18) Which is the hottest place in India?
- 19) Which of these rivers originates in the Michael River of Madhya Pradesh and flows eastwards into the Bay of Bengal?  
(Mahanadi, Godavari, Krishna, Cauvery)
- 20)

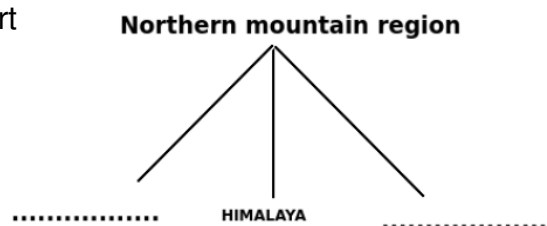


The image indicates the movement of the wind Of

- 21) Which of the following is a correct statement about the Western coastal plain?  
The width is relatively high  
It stretches from Sundaravanam to Kanyakumari  
Backwaters and estuaries are seen  
Delta formation takes place

**Answer the following questions in 2 marks?**

- 23) Dense tropical rainforests are a feature of the eastern mountains. Write other features as well
- 24) What are the seasons experienced in India?
- 25) Analyze the role of jet streams in bringing western disturbance to India.
- 26) Complete the flowchart



## Kollam District Panchayat &amp; General Education Department

27) Complete the list

Origin	River
Chemayung Tung Glacier in Tibet	.a.....
b.....	Ganga

28) Write the factors influencing the climate of India?

29) Write the name of the two branches of the southwest monsoon wind?

30) Which of these seasons is experienced in India during the following months?

a) December to February

b) March to June

**Answer the following questions in 3 marks**

31) Prepare a note analysing comparing summer and winter.

32) Explain what are western disturbance and October heat

33) What are the major soil types found in the peninsular plateau ?

34) What is the cause of winter rains in Punjab? What is the agricultural significance of this rain in India?

35) Which is the southernmost mountain range of the Himalayas? Write down any 2 features of this mountain range.

36) As the Himalayan rivers cut across this range, its continuity breaks at many places

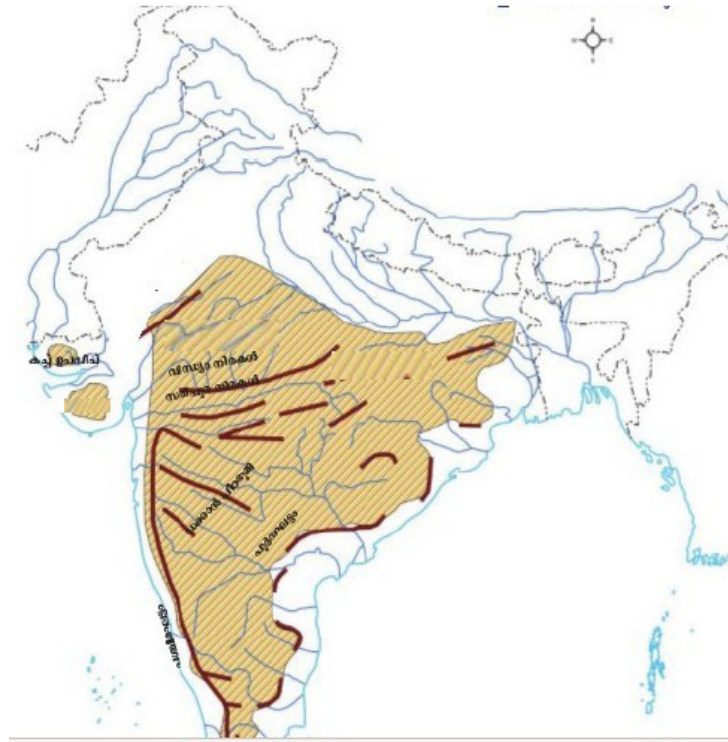
A What is the name of the Himalayan range mentioned in the statement?

B. What is the average height of this Himalayan range

C. Broad flat valleys seen along these ranges are called

37) Some of the subdivisions are avoided in the outline of the peninsular plateau marked by Rohit. Please write down what they are

## Kollam District Panchayat &amp; General Education Department

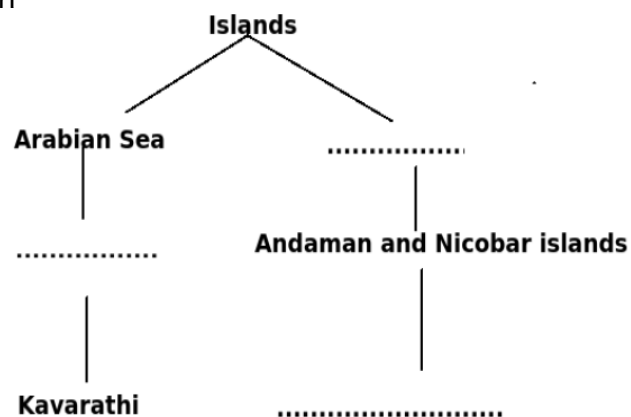


38) Write down any three features of the Eastern coastal plain

39) Complete the table

River	Origin	Tributaries
Mahanadi	a.....	lb
Krishna	Western Ghats	b.....
c.....	Muntai Plateau	Anar

40) Complete the flowchart





### Kollam District Panchayat & General Education Department

**Answer the following questions in 4 marks?**

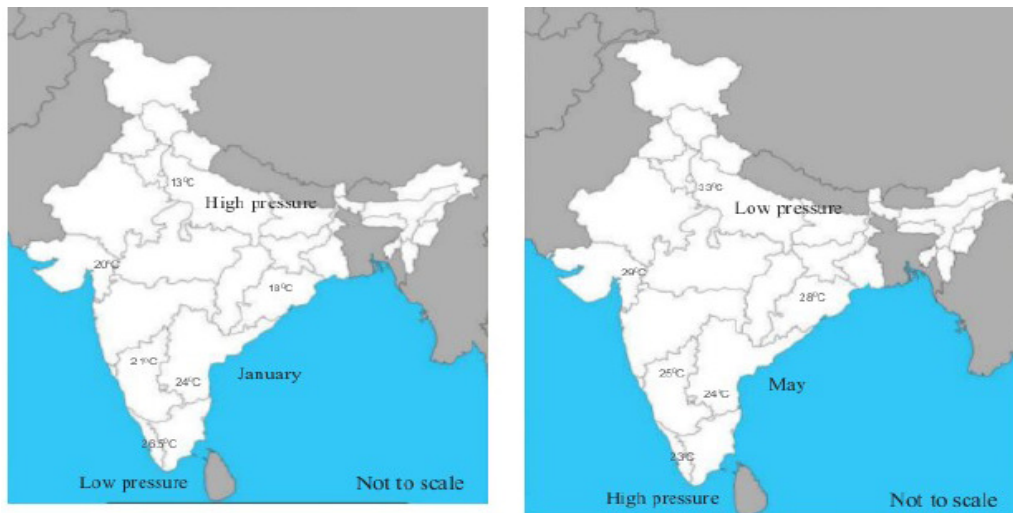
41) Match the following

A	B
Godwin Austin	Cherrapunji
Siwaliks	Karakoram
Eastern	Highlands Dunes
Himachal	Shimla

42) Complete the table:

Northern mountain region		
Trans Himalayas	Himalayas	A
(a) Karakoram	(i) Himadri	(1) Patkai Bum
(b) Ladakh	(ii) <b>C</b>	(2) Naga hills
(c) <b>B</b>	(iii) Siwaliks	(3) Garo, Khasi, and Jaintia hills
		(4) <b>D</b>

43) Analyze the given map and make a note:



44) What are the factors influencing the climate of India?

45) What are the features of the Peninsular Plateau?

46) What are the features of Northeast Monsoon?

## Kollam District Panchayat &amp; General Education Department

- 47) Compare Himalayan rivers and peninsular rivers in terms of features
- 48) Mark the geographical features in the outline map of India  
A Narmada River B Karakoram Range C Kutch Peninsula D Chota Nagpur Plateau
- 49) Mark the information given below in the outline map of India  
A. mountain that separates the Malwa Plateau from the Rajasthan Desert  
B. Plateau between Vindhya range and Aravalli range  
C. The Peninsular River its tributary is Tungabhadra River  
D. Coastal plain extending from Rann of Kutch to Kanyakumari
- 50) Mark the outline of India  
1 Mount K2, the highest peak in India  
2. River origin from Maikala Ranges  
3. Plateau in India where the lava froze 3 million years ago  
4 Sundarban delta region to Kanyakumari
- 51) Identify the name of the area marked A in the picture and write any three features of this category



- 52) Identify and write down some of the major rivers in India that are marked in the outline:



**Kollam District Panchayat & General Education Department**

53) Which coastal plain lies between the Bay of Bengal and the Eastern Ghats?

Write down any three features of this landscape

**Answer the following questions in 6 marks?**

- 54) Prepare a description of the seasons in India Indicates Winter, Summer, Southwest Monsoon, Retreat of Monsoon
- 55) Describe Southwest monsoon and North east monsoon Indications Forming conditions, rainfed areas
- 56) Describe the importance of the Northern Mountain range in shaping the climate and life of India
- 57) Compare Himalayan Rivers and Peninsular Rivers based on the factors given below:
- Erosion
  - Water availability
  - Catchment area
  - Possibility of water transport

**ANSWERS**

- 1) Bhima and Tungabhadra are the tributaries of the river Krishna
- 2) Peninsular Plateau,
- 3) Aanamudi
- 4) Cauvery
- 5) Kavaratti
- 6) Indira Point
- 7) The highest peak in India is Mount K2 (Godwin Austin)
- 8) Cold weather season
- 9) The western part of the northern plains receives very little rainfall.
- 10) Loo, Mangoshaver ( $\frac{1}{2} + \frac{1}{2} = 1$ )
- 11) Baron
- 12) North Great Plain
- 13) Black soil
- 14) Himadri
- 15) Trans? Himalayas

## Kollam District Panchayat &amp; General Education Department

- 16) Eastern Highlands
- 17) Himadri.
- 18) Jaisalmer (Thar Desert)
- 19) Godavari
- 20) Southwest monsoon winds
- 21) Backwaters and esturies are seen
- 23) 500 to 3000 m high  
Cherrapunji is the wettest place in the world
- 24) Winter ( $\frac{1}{2}$ )  
Summer ( $\frac{1}{2}$ )  
Southwest monsoon ( $\frac{1}{2}$ )  
North East  
Monsoon ()
- 25) Jet streams, the strong upper air currents in the troposphere have a significant role in bringing the western disturbance to India.
- 26) Trans Himalayas, Eastern Mountains
- 27) a Brahmaputra  
b Lake Manasarovar in Tibet,
- 28) Latitude  
Altitude
- 29) Arabian Sea branch  
• Bay of Bengal branch
- 30) Winter, Summer

31)

Hot weather season	Cold weather season
In March, April and May Sun is over the northern hemisphere Local winds such as Loo and Mangosteen prevail during this period	During the months of December - January - February The southern hemisphere of the sun The phenomenon of western disturbance occurs.

## Kollam District Panchayat &amp; General Education Department

- 32) Western disturbance. The cyclones originating in the Mediterranean Sea during winter, gradually shifts towards the east and reaches India. This causes winter rainfall in the northern plains, especially in the Punjab region. This rain is much beneficial for the winter crops. October heat. Retreating monsoon season experienced during the months of October and November makes the days unbearable due to high temperature and humidity. This phenomenon is known as October heat.
- 33) Black soil / cotton soil, Red soil. Laterite soil
- 34) Western disturbance, the cyclones originating in the Mediterranean Sea during winter, gradually shifts towards the east and reaches India. This causes winter rainfall in the northern plains, especially in the Punjab region. This rain is much beneficial for the winter crops.
- 35) • Situated to the south of the Himachal.  
• Average altitude is 1220 metres.  
• As the Himalayan rivers cut across this range, its continuity breaks at many places.  
• Broad flat valleys seen along these ranges are called Duns. (Eg: Dehradun)
- 36) A. Siwaliks region B. Average height 1220 m C. Duns
- 37) Chottanagpur, Aravalli Range, Kathiawar, Malwa Plateau
- 38) Between the Bay of Bengal and the Eastern Ghats  
• From the Sundarban delta region to Kanyakumari  
• Comparatively wide  
• Can be divided into north Zircar plain and Coromandal coast  
• Delta formation takes place (Any three features)
- 39) a) Maikala Ranges  
b) Bhima, Thungabhadra  
c) Tapi
- 40) a) Bay of Bengal b) Lakshadweep c) Port Blair

41)

A	B
Godwin Austin	Karakoram
Siwaliks	Dunes
Eastern Highlands	Cherrapunji
Himachal	Shimla

- 42) A Eastern Hills, B Ladakh, C Sivalik D Miso Hills

## Kollam District Panchayat &amp; General Education Department

## 43) Map 1

The map shows the average daytime temperature experienced in different parts of India in January. Temperatures are declining from south to north.

## Map 2

Map of the May temperature distribution system. The temperature in northern India is much higher than in the coastal areas

## 44) Latitude

Physiography

Nearness to sea

Altitude

## 45) Made of hard crystalline rocks forms the oldest and the most extensive physical division of India. Extends about 15 lakh square kilometres deposits of diverse minerals, Black soil is extensively found in this region

## 46) Retreating monsoon season

unbearable due to high temperature and humidity. This phenomenon is known as October heat. this is the main rainy season of Tamil Nadu, Kerala and some parts of Karnataka also receive northeast monsoon rains.

## 47)

<b>Himalayan Rivers</b>	<b>Peninsular rivers</b>
Originate from the Himalayan mountain ranges	Originate from the mountain ranges in the peninsular plateau
Extensive catchment area	Comparatively smaller catchment area
Intensive erosion	Intensity of erosion is less
Create gorges in the mountain region and meander in plains	Do not create deep valleys as they flow through hard and resistant rocks
High irrigation potential	Less irrigation potential
Navigable along the plains	Potential for inland navigation is low

## 48) Mark the outline of India

**Kollam District Panchayat & General Education Department**

- 49) Mark the outline of India
- 50) Mark the outline of India
- 51) a) The Peninsular Plateau  
b) Write any two features
- 52) Mark in outline  
A)Ganga B) Cauvery C) Brahmaputra D) Tapti

**Unit - 8****Resource Wealth of India****Introduction**

India is blessed with diverse natural resources. Extent of land, Physiographic characteristics, climate, soil type etc. are the factors influenced the development of our country. Resource availability and resource utilisation caused the development of agriculture, mining, industry and transport. This chapter deals with the geographical characteristics of these sectors.

**Concepts**

- ☐ Agriculture and agro based industries
- ☐ India is an agricultural country
- ☐ Kharif, Rabi, Zaid, are the cropping seasons in India
- ☐ Agricultural crops in India can be classified as food crops and cash crops
- ☐ The important food crops are rice, wheat, maize
- ☐ Cash crops are categorised in to fibre crops, beverage crops, spices and other crops
- ☐ Agro based industries
  - Cotton textile industry
  - Jute industry
  - Sugar industry
  - Tea, Coffee, Rubber, Spices
- ☐ Iron and steel, manganese are mineral based industries
- ☐ Mineral fuels - Coal, petroleum and natural gas
- ☐ Uranium and Thorium are major nuclear minerals
- ☐ Solar energy, Wind energy, Wave energy, Tidal energy and Biogas etc. are the major non conventional energy sources in India.
- ☐ Road transport, Railways, Water transport, Air transport are the different modes of transport.

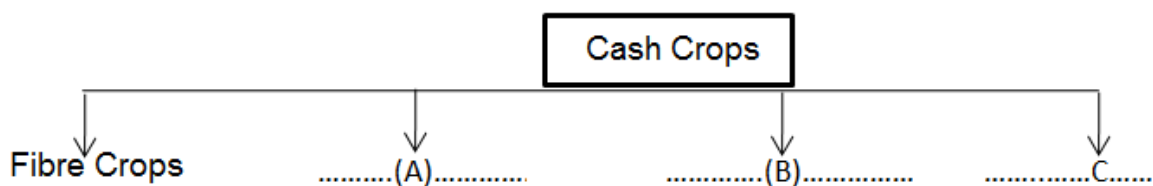


**Kollam District Panchayat & General Education Department****Questions****Answer in one word (1 score each)**

1. The most suitable soil for rice cultivation?
2. The second major food crop in India?
3. Monsoon crops are otherwise called?
4. The largest agro based industry in India?
5. Which type of cash crops are cotton and jute?
6. The largest producer of tea in the World?
7. The leading rubber producing state in India?
8. Which type of fuel is coal?
9. The largest mineral based industry in India?
10. The first petroleum mined state in India?
11. Koodamkulam nuclear power plant is in ?
12. The largest public sector undertaking in India?
13. The cheapest means of transportation is?
14. The air traffic in India is under the control of?
15. The southern most port of India?

**Answer the following questions (3 score each)**

16. Complete the chart



17. Which are the favourable factors for wheat cultivation?
18. What are the merits of non-conventional energy sources?
19. Which are the non ferrous metallic minerals?
20. Which are the raw materials of Iron and Steel industry?
21. Write the advantages of water transport?

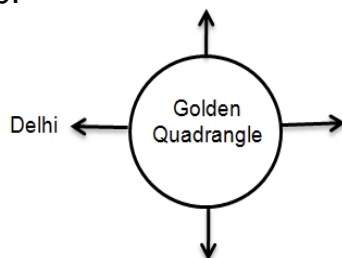
## Kollam District Panchayat &amp; General Education Department

22. Complete the table

Cropping Seasons	Sowing Period	Harvesting Period	Major Crops
Kharif	Onset of Monsoon	-----	Rice, Maize, Cotton
Rabi	-----	Beginning of Summer	Wheat, tobacco, Mustard
-----	Beginning of Summer	Beginning of Monsoon	Fruits, Vegetables

23. How railways are classified based on gauge width of railways?

24. Complete the word web:



**Answer the following questions (4 score each)**

25. Uttar Pradesh is the leading producer in both sugar cane and cane sugar. What is the reason behind it?
26. Human resource availability is one of the favourable factor that helped Mumbai to become the most important cotton textile centre. Which are the other factors?
27. List the major spices and write the favourable conditions for its cultivation?
28. Classify the roads in India?
29. Solar energy is one among the non conventional energy sources, which are the other sources?
30. Which are the regions in which inland water transport is largely used in India?
31. Match the following:

A	B
Coal	Metalic Mineral
Tea	Kharif Crop
Gold	Beverage Crop
Cotton	Mineral fuel

**Kollam District Panchayat & General Education Department**

32. Choose the state of the following Iron and steel industry?

Bhilai steel plant

Rourkela steel plant

Durgapur steel plant

Bokaro steel plant

(Jharkhand, West Bengal, Odisha, Chattisgarh)

**Answer the following questions (6 score each)**

33. Write a short note on fossil fuels, petroleum and natural gas?

34. Classify the following ports in to western coast ports and eastern coast ports?

Visakhapatnam, Marmagoa, Paradip, Kandla, Mangalore, Nhava Sheva, Chennai, Mumbai, Kolkata, Kochi, Tuticorin, Haldia

**ANSWER KEY**

1. Alluvial Soil
2. Wheat
3. Kharif
4. Cotton textile industry
5. Fibre crops
6. India
7. Kerala
8. Mineral fuel
9. Iron and steel industry
10. Assam
11. Tamil Nadu
12. Indian Railway
13. Water transport
14. Airport Authority of India
15. Tuticorin
16. (a) Beverage crops  
(b) Spices  
(c) Other crops

**Kollam District Panchayat & General Education Department**

17. ♦ Well drained alluvial soil
  - ♦  $10^{\circ}$  to  $26^{\circ}$  celcius temperature and 75cm of rainfall.
  - ♦ Mainly depends on irrigation as it is a winter crop.
18. ♦ Renewable
  - ♦ Cheap
  - ♦ Environment friendly
19. Gold, Silver, Copper, Bauxite
20. Iron ore, Coal, Manganese, Lime stone, dolomite
21. ♦ Cheapest means of transport
  - ♦ Suitable for large scale cargo transport
  - ♦ Does not create environmental pollution
  - ♦ Most suited for international trade
22. ♦ End of monsoon
  - ♦ Beginning of winter
  - ♦ Zaid
23. Broad Guage, Meter Guage, Narrow Guage.
24. Mumbai, Chennai, Kolkata
25. The sugar cane harvested must be immediately brought to the factories so as to extract the juice out of it. Otherwise the amount of sucrose in the sugar cane might decrease. So the sugar mills are established along with sugar cane cultivating regions. The largest producer of sugar cane in India is Uttar Pradesh. So Uttar Pradesh is the leading producer of sugar cane and cane sugar.
26. ♦ Easy availability of raw materials
  - ♦ Cheap availability of power
  - ♦ Export import possibilities of Mumbai port
  - ♦ Fresh water availability
27. Cardamom, Pepper, Nutmeg, Clove Ginger are the important spices.
  - ♦ Well drained forest soil or sandy soil
  - ♦ Tropical climate
  - ♦ Large amount of rainfall are the favourable factors
28. ♦ National Highways ♦ State Highways
  - ♦ District Roads ♦ Village Roads
29. Wind energy, Wave energy, Tidal power, Bio gas

**Kollam District Panchayat & General Education Department**

30. ♦ Ganga - Brahmaputra rivers and their tributaries  
 ♦ Godavari - Krishna rivers and their tributaries  
 ♦ Backingham canal of Andra - Tamil Nadu region  
 ♦ Mandovi and Zuvari rivers of Goa  
 ♦ Back waters of Kerala (Any four)

31.

A	B
Coal	Mineral Fuel
Tea	Beverage Crop
Gold	Metalic Mineral
Cotton	Kharif Crop

32. Bhilai steel plant - Chattisgarh  
 Rourkela steel plant - Odisha  
 Durgapur steel plant - West Bengal  
 Bokaro steel plant - Jharkhand

33. ♦ Petroleum is the chief energy source for transportation through road, rail or air.  
 ♦ Other than petrol diesel and numerous by-products are also obtained from petroleum such as chemical fertilisers, artificial rubber, artificial fibre, vaseline etc.  
 ♦ Petroleum mining in India started at Digboi in Assam  
 ♦ Petroleum producing states in India are Assam, Gujarat, and Maharashtra  
 ♦ The largest of the mines is the Mumbai High in Maharashtra  
 ♦ Natural gas is the fuel obtained along with petroleum. Exclusive reserves of natural gas also exist, especially along the coast of Tamil Nadu and Andhra Pradesh.

34.

Western Coast Ports	Eastern Coast Ports
Kandla	Tuticorin
Mumbai	Chennai
Nhava Sheva	Visakhapattanam
Marmagao	Paradeep
Mangalore	Haldia
Kochi	Kolkatta

**Kollam District Panchayat & General Education Department****Supporting Material****Questions**

1. Rice, the staple food crop of India is a .....Crop (1)
2. The food crop in India which is cultivated in both summer and winter.
3. Which type of cash crop is Tea and Coffee ?
4. The most important Cotton textile centre in India.
5. Which state is the leading producer in both sugar cane and cane sugar ?
6. The largest petroleum mine in India
7. Which product is known as universal fibre ?
8. The important port in Kerala is
9. Which is the most suited mode of transport for international trade ?
10. Which is the chief energy source for transportation through road, rail or air. ?
11. Which are the cropping seasons in India ?
12. Which are the main food crops in India ?
13. Name the important mineral fuels (Fossil Fuels)
14. Which are the important Coffee plantation states in India ?
15. Name the institutions which function in the air transport in India

**Answer Key**

1. Kharif
2. Maize
3. Beverage Crops
4. Mumbai
5. Uttar Pradesh
6. Mumbai High
7. Cotton
8. Kochi
9. Water Transport
10. Petroleum
11. Kharif, Rabi, Zaid
12. Rice, Wheat, Maize
13. Coal, Petroleum, Natural gas
14. Karnataka, Kerala, Tamil Nadu
15. Airport Authority of India  
Air India  
Indian Airlines

**Kollam District Panchayat & General Education Department****Unit - 9****Financial Institutions and Services****Introduction**

Financial institutions like Banks, Functions of Banks, Functions of Central Bank, Co-Operative Banks, Development Banks, Specialised Banks, Modern trends in banking sector, Non-banking financial Institutions etc. are the content of this unit.

**Concepts**

- ☐ Reserve Bank of India - Functions
- ☐ Financial Institutions are classified in to Banks and non- banking financial institutions

**Banks:**

Commercial banks, Co-operative banks, Development banks, Specialised banks

**Non-Banking Financial Institutions:**

Non-banking financial companies, mutual fund institutions, insurance companies

**Modern Trends in Banking Sector:**

Electronic banking,  
Core - Banking

**Questions**

**Answer in one word (1 score each)**

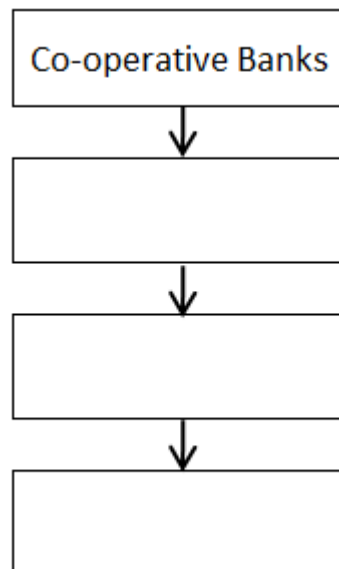
1. Name of Central Bank of India
2. The first modern bank in India
3. Name the opportunity to transfer money from anywhere in the world either to one's own account or some one else's account.

**Kollam District Panchayat & General Education Department**

4. The facility to withdraw money any time without going to the Bank is called
5. The apex bank in India which function for the development of villages and agriculture
6. The first Insurance company of India was established in
7. Who print currency in India?
8. Name the facility for a customer to withdraw money over and above the balance his or her account.
9. The facility which helps in purchasing products without having to keep money on person.
10. Which deposit facilitates depositing and withdrawing money many times in a day
11. Name a non-banking company operating in Kerala
12. Which type of Bank is Industrial Finance Corporation of India

**Answer the following questions (3 score each)**

13. Complete the flow chart

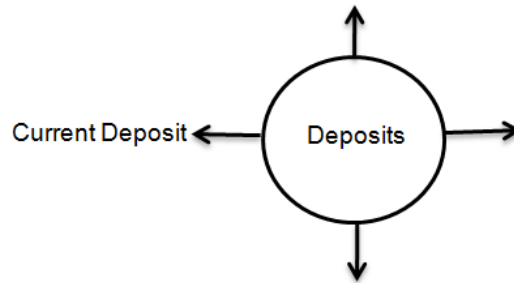


14. Which are the main non-banking financial institutions in India?
15. Write any three services provided by non-banking financial companies
16. Write any three collateral that banks accept to provide loans
17. Which are the important mutual fund institutions working in the public sector?



**Kollam District Panchayat & General Education Department**

18. Complete the word web:



19. Reserve Bank of India is Banker's Bank. Mention the other functions of Reserve Bank of India  
 20. How electronic banking is helpful to the people?

**Answer the following questions (4 scores each)**

21. What are the purposes for which banks provide cash credit to public?
22. List the features of the facilities provided by payment banks
23. Name any four employment units operated by self help groups in Kerala
24. Write a short note on Mahila Banks
25. Which are the different types of banks functioning in financial sector?
26. Write a short note on over-draft
27. List the main aims of Co-Operative banks

**Answer the following questions (6 score each)**

28. Analyse the functions of commercial banks
29. List the major goals of micro finance
30. What are the features of the following banks?
  - ◆ EXIM Bank of India
  - ◆ Small Industries Development Bank of India
  - ◆ National Bank for Agricultural and Rural Development (NABARD)

**Answers**

1. Reserve Bank of India
2. The Bank of Hindustan
3. Mail Transfer

**Kollam District Panchayat & General Education Department**

4. A.T.M.
5. NABARD
6. Kolkata
7. Reserve Bank of India
8. Overdraft
9. Credit card
10. Current deposit
11. Kerala State Financial Enterprises
12. Development Bank
13. ♦ State Co-operative Bank
  - ♦ District Co-operative Bank
  - ♦ Primary Co-operative Bank
14. ♦ Non banking financial companies
  - ♦ Mutual fund institutions
  - ♦ Insurance companies
15. ♦ Provide loans for hire purchases
  - ♦ Provide loans for construction of house
  - ♦ Provide gold loan
  - ♦ provide loan on the basis of fixed deposit.
  - ♦ Runing chitty (Any three)
16. ♦ Physical assets - Gold
  - ♦ Property documents
  - ♦ Fixed deposit certificate
  - ♦ Salary certificate
17. ♦ Unit Trust of India
  - ♦ L. I. C. Mutual Fund
  - ♦ S.B.I. Mutual Fund
18. ♦ Saving deposit
  - ♦ Fixed deposit
  - ♦ Recurring deposit

**Kollam District Panchayat & General Education Department**

19. ♦ Printing currency
  - ♦ Controlling credit
  - ♦ banker to government
20. ♦ Money can be sent and bills can be paid anywhere in the world from home
  - ♦ Saves time
  - ♦ Low service charge
21. ♦ Agricultural purposes
  - ♦ Industrial purposes
  - ♦ Constructing houses
  - ♦ Purchasing vehicles
  - ♦ Purchasing home appliances
22. ♦ Accept deposits up to only one lakh rupee from individuals.
  - ♦ Provide interest on deposits as specified by Reserve Bank of India
  - ♦ Do not provide loans
  - ♦ Charge a specific fee as commission for bank transactions
  - ♦ Debit card will be provided but not credit card
23. ♦ Pickle and snacks units
  - ♦ Soap and washing powder units
  - ♦ Hotels
  - ♦ D.T.P. Centres
24. Bharathiya Mahila Bank was started in November 2013. The main slogan of this bank is 'Women Empowerment is India's Empowerment'. Today this bank has branches in various states. Though the bank accept deposit from all, it provide loan mainly to women.
25. ♦ Commercial banks
  - ♦ Co-operative banks
  - ♦ Development banks
  - ♦ Specialised banks
26. Overdraft is a type of loan given by commercial banks to individuals. This is an opportunity for a customer to withdraw in his/her account. This facility is provided to individuals who have frequent transactions with the bank. Generally this opportunity is provided to individuals who is provided to individuals who maintain current deposit.

**Kollam District Panchayat & General Education Department**

27. ♣ Provide loans to the public
- ♣ Protect the villagers from private money lenders
  - ♣ provide loans at low interest rate
  - ♣ Encourage saving habit among the people
28. ♣ **Accepting deposit**
- Deposits are four types saving deposit, current deposit fixed deposit, recurring deposit.
- ♣ **Providing loans**  
Cash, Credit, Overdraft
  - ♣ **Other facilities**  
Locker facilities, Demand draft, Mail transfer, A.T.M.
29. ♣ Helps in collective development by mobilising money from individuals
- ♣ Helps to increase the standard of living of the poor
  - ♣ Encourages saving habit
  - ♣ Make use of the individual potential for group development
  - ♣ Provide loans to members in need
  - ♣ Start small scale enterprises.
30. **EXIM Bank of India**
- ♣ Provide loans for exporting and importing products.
  - ♣ Provides instruction to individuals who come in to this sector.
- Small Industries Development Bank of India**
- ♣ Provides help to establish new small scale industries and to modernise existing industries
  - ♣ Aim to vitalise village industries
- NABARD**
- ♣ Apex bank in India which functions for the development of villages and agriculture
  - ♣ Unites all the banks which operate for the development of villages
  - ♣ Provide financial assistance to agriculture, handicraft, small scale industries etc.

**Kollam District Panchayat & General Education Department****Supporting Material****Questions**

1. Which bank serve as the banker to the Central and State governments? (1)
2. Name the facility provided by the bank to send money from one place to another (1)
3. The bank which function in the export and import sector (1)
4. Money can be deposited in banks for a specific period of time.  
What is the name of such deposit? (1)
5. Name the loans given by accepting collaterals (1)
6. Which is the facility arranged in such way that banking services from  
one bank to another is possible? (1)
7. Which type of institution is Unit Trust of India? (1)
8. Name the facility provided to individuals and institutions for keeping  
their valuable assets (1)
9. List the banks which have emerged in the banking sector with certain specific aims. (3)
10. Write the working principles of co-operative banks (3)
11. Which are the important things to be followed while using ATM cards (4)
12. Which are the facilities that have been brought together through core banking? (3)

**Answer Key**

1. Reserve Bank of India
2. Demand Draft
3. EXIM bank of India
4. Fixed Deposit
5. Cash credit
6. Core Banking
7. Mutual Fund institution
8. Locker facility
9. Mahila Banks
10. Payment Banks
11. Mudra Banks

**Kollam District Panchayat & General Education Department**

12. Co-operation

Self help

Mudra help

13. ♦ Make sure that no one at the counter

♦ Do not share the ATM personal Identification Number (PIN)

♦ Assure the balance amount on receiving the receipt of money withdrawal

♦ Do not carelessly throw away the receipt

14. A.T.M., Debit Card, Credit Card, Net banking, Tele banking, Mobile banking

**Unit - 10**

# **Consumer Protection and Satisfaction**

**Introduction**

We use different types of goods and services in our day today life. When we use goods and services for the satisfaction of our needs, we are consumers. There are various circumstances where consumers are exploited and cheated. The laws against the exploitation, administrative measures, consumer educations etc. are the content of this unit. Consumer Education is also an important concept of this unit.

**Concepts**

1. Consumption is the satisfaction of human wants using goods and services.
2. Consumer is a person who purchases and uses goods and services.
3. The Consumer Protection Act 1986 clearly defines the consumer rights and set special judiciary mechanism for consumer protection
4. The consumer courts which are mechanisms for assessing or helping the consumer as per law.
5. The consumer courts are operating at three levels- District consumer disputes redressal forum, State consumer disputes redressal forum, National consumer disputes redressal forum.
6. The other acts for protection of consumers are the following:
  - Sale of goods act 1930
  - Agriculture produce (Grading and Marketing) Act 1937
  - Essential Commodities Act 1955
  - Weights and measures Act 1976
7. There are different departments and institutions working for the protection of consumers interest.
8. The symbols given in the basis of assessing the standard of products and institutions help the consumers in ascertaining the quality of products and institutions .
9. The intervention of society, consumer education etc. help for empowering consumers

**Kollam District Panchayat & General Education Department****Questions****Answer in one word (1score each)**

1. The important law in consumer protection.
2. Name the lowest wing of consumer courts.
3. Name the department that ensures the weights and measures.
4. Name the institution which regulates the price of drugs.
5. Name the law that protect the consumer from hoarding, black marketing and profiteering.
6. Write the fullform of ISI
7. The amount upto which the District consumer dispute redressal forum resolves consumer disputes.
8. Name the department that ensures the quality and safety of medicines.
9. Abbreviation for Bureau of Indian Standards.
10. The system which is responsible for assisting the consumer legally.
11. What is the symbol for ensuring the quality of agricultural and forestry products?
12. Department of food quality assurance.
13. Act to prevent fraud in quantity and weight.
14. The law that ensures quality of agricultural products

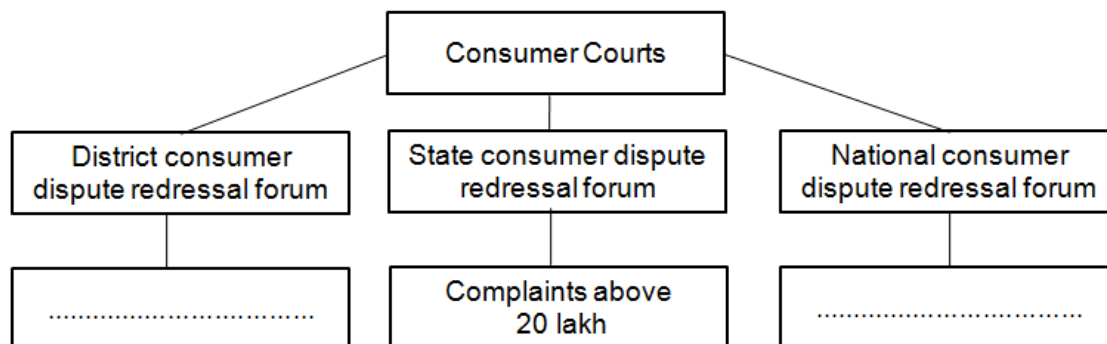
**Answer the following questions**

15. Complete the list provided with features of consumer court. (2)
  - Arbitration costs are low
  - .....
  - .....
  - .....(any two)
16. The District consumer Protection council is the lowest body of the three-tier advisory council. Write the name of other two councils. (2)



**Kollam District Panchayat & General Education Department**

17. Complete the following chart:



18. What are the possibilities of social intervention for consumer protection?. (3)

19. Write down any three instances where consumers are being exploited. (3)

20. What are the main ways to provide consumer education?. (3)

21. Match the following: (4)

Food safety department	Controls price of medicines
Central Drugs Price Committee	Ensure the quality of food products
Drugs control Department	Ensures the quality of food products at various stages like production, storage, sale and import
Food safety and Standard Authority of India	Ensures the quality and safety of medicines

22. What other consumer protection laws exist in addition to the Consumer Protection Act of 1986? (4)

23. Write down any four instances in which we can file a complaint to the Consumer Court?(4)

24. How consumer education empowers the consumer? (4)

25. What are the solutions available through consumer courts for consumer action? (4)

## Kollam District Panchayat &amp; General Education Department

26. Find out what each of the given symbols represents and complete the list. (4)



27. Which departments or institutions have the power to make decisions in the following cases?

- Intervene the pricing of medicines
- When reducing the size and weight
- When adulteration of food.

### Answer Key

1. Consumer Protection Act 1986
2. District Consumer disputes redressal Forum
3. Legal Metrology Department
4. Central Drugs Price Control Committee
5. Essential Commodities Act, 1955
6. International organisation for Standardisation.
7. Upto 20 lakh.
8. Drugs control Department
9. BIS
10. Consumer Courts
11. Agmark
12. Food safety department
13. Weights and Measures Act
14. Agriculture Produce Act, 1937.

**Kollam District Panchayat & General Education Department**

15. Fast assurance of Justice
  - Less court expenses
16. State consumer Protection Council
  - National Consumer Protection Council
17. Complaints upto 20 lakh
  - Complaints above 1 crore
18. Functioning of consumer organisations
  - Consumer Awareness
  - Public interest litigation
19. Selling low quality products
  - Adulteration
  - Charging excess price
  - Manipulation of weights and measures
  - Delay in making services
20. Awareness programmes
  - Inclusion in the curriculum
  - Observance of the National Consumer Day
21. Ensures the quantity of food products
  - Controls price of medicines
  - Ensures the quality and safety of medicines
  - Ensures the quality of food products at various stages like production, storage, sale and import.
22. Sale of goods act 1930
  - Agriculture produce (Grading and Marketing) Act 1937
  - Essential Commodities Act 1955
  - Sale of goods act 1930
  - Agriculture produce (Grading and Marketing) Act 1937
  - Essential Commodities Act 1955
  - Weights and measures Act 1976
23. When the purchased product is damaged or defective.
  - Defective services received from government/non government/private institutions

**Kollam District Panchayat & General Education Department**

- 24. Helps to consume sensibly as per the wants.
  - Helps to acquire information regarding products and services.
  - Enables the consumer to make the right choices.
  - Makes the consumer aware of his/her rights
  - Make them capable of intervening in consumer disputes
- 25. ISO certifies goods and services quality
  - It indicate the purity of gold jewellery
  - Ensure the quality of agricultural and forestry products.
  - This symbol ensures the quality of electrical appliances, cement, paper, paint etc.
- 27. Central drugs price control committee
  - Food safety department
  - Legal Metrology department.