

GEOGRAPHY

7

MAPPING SKILLS

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I. CHOOSE THE CORRECT ANSWER.

1. The new phase in topographical surveying in the 20th century is

- a) Toposheets b) Aerial photography
c) Maps d) Satellite imagery

Ans: b)

2. indicates the purpose of theme of the map.

- a) Title b) Scale c) Direction
d) Legend **Ans. (a)**

3. Standard symbols that are used in map to convey a definite meaning are called

- a) Conventional signs and symbols b) Coordinates
c) Grid reference d) Directions

Ans: a)

4. Which one of the following maps show us a very large area with less details?

- a) Large Scale b) Thematic c) Physical d) Small scale

Ans: a)

5. GPS consists of a constellation of satellites.

- a) 7 b) 24 c) 32 d) 64

Ans: b)

ADDITIONAL

6. A map is a basic tool of a

- a) Mathematician b) Scientist c) Geographer d) Soldier

Ans: c)

7. The art of map making is called

- a) Cartography b) Radiography c) Oceanography d) Demography

Ans: a)

8. Maps are drawn normally with orientation.

- a) East b) West c) South d) North

Ans: d)

9. The of a map helps to understand the map details.

- a) Symbols b) Grid system c) Legend d) Direction

Ans: c)

10. The 'azimuthal' polar projection is depicted on the flag of

- a) United Kingdom b) United Nations c) U.S.A d) SAARC

Ans: b)

11. On the map, colour is used to show international boundaries.

- a) Red b) Pink c) Black d) Brown

Ans: b)



II. MATCH THE FOLLOWING.

- | | |
|-----------------------------------|--------------------|
| 1. The art and science of mapping | - a) USA |
| 2. Thematic mapping | - b) Geoid |
| 3. Actual shape of the Earth | - c) Inmarsat |
| 4. A satellite | - d) Political map |
| 5. NAVSTAR | - e) Cartography |

Ans: 1-e 2-d 3-b 4-c 5-a

ADDITIONAL

- | | |
|----------------|-------------------------|
| 6. Bhuvan | - a) India |
| 7. GLONASS | - b) Sanskrit for Earth |
| 8. Felix Nadar | - c) Russia |
| 9. NAVIC | - d) Europe |
| 10. GALILEO | - e) French balloonist |

Ans: 6-b 7-c 8-e 9-a 10-d

III. CONSIDER THE GIVEN STATEMENTS ARE CLOSE THE RIGHT OPTION GIVEN BELOW:

1. Assertion (A) : The points at which the vertical and horizontal lines of the grid intersect are called coordinates.

Reason (R) : The lines that run horizontally and vertically are called Northings and Easting respectively.

- a) Both A and R are true; (R) explains (A)
 b) Both (A) and (R) are true; but (R) does not explain (A)
 c) (A) is correct; (R) is false
 d) (A) is false; (R) are true.

Ans: a)

2. Assertion (A) : The legend of a map does not help us to understand the information in a map.

Reason (R) : It is usually placed at the left or right corner at the bottom of the map.

- a) (A) is false; (R) are true.
 b) Both (A) and (R) are true; but (R) does not explain (A)
 c) (A) is correct; (R) is false
 d) Both A and R are true; (R) explains (A)

Ans: a)

ADDITIONAL

3. Assertion (A) : In Egypt, surveyors were called 'rope stretchers'.

Reason (R) : Because, they used ropes to measure distances.

- a) (A) is false; (R) are true.
 b) Both (A) and (R) are true; but (R) does not explain (A)
 c) (A) is correct; (R) is false
 d) Both A and R are true; (R) explains (A)

Ans: d)

4. Assertion (A) : Lost vehicles cannot be tracked generally by satellite or aerial photographs.
 Reason (R) : They can be tracked by Global Navigation Satellite System (GNSS).

- a) (A) is false; (R) are true.
- b) Both (A) and (R) are true; but (R) does not explain (A)
- c) (A) is correct; (R) is false
- d) Both A and R are true; (R) explains (A)

Ans: b)**IV. ANSWER IN BRIEF.****1. Name the different methods to represent the Earth.**

Maps and Globes are the different methods to represent the Earth.

2. What is a map?

- A map is defined as the miniature image of the 3 dimensional earth's surface on a paper/ cloth or any flat surface.
- Maps can show a whole or part of the world.

3. What are the components of a map?

The components of the map are-

- | | | |
|--------------|----------------|-----------------------|
| 1. Title | 4. Grid system | 7. Conventional signs |
| 2. Scale | 5. Projection | 8. Symbols |
| 3. Direction | 6. Legend | |

4. The distance between two cities A and B is 5 km. It is represented by a line of 5 cm on the map. Calculate the distance and give the answer in RF.

$$\text{To find Representative Fraction (RF)} = \frac{\text{Distance on the map}}{\text{Distance on the ground}} = \frac{5\text{cm}}{5\text{km}}$$

$$1 \text{ cm} = 1 \text{ km}$$

$$\text{RF} = 5 \text{ cm} / 5 \text{ km}$$

$$\text{so, } 5 : 500000 \text{ (or) } 1 : 100000$$

Therefore, RF is 1 : 1,00,000 cm

5. Mention a few surveying instruments.

A few surveying instruments are-

- | | | |
|----------------------|----------------|------------------|
| 1. Chain | 4. Dumpy level | 7. Theodolite |
| 2. Prismatic compass | 5. Abney level | 8. Total station |
| 3. Plane table | 6. Clinometre | 9. GNSS |

6. Define : Remote sensing.

- Remote sensing refers to the observation and measurement of earthy objects without touching them.
- 'Remote' means far way and 'Sensing' means observing or collecting information.
- Remote sensing means acquiring information of things/places from a distance using a various of tools and methods.



7. What are the components of remote sensing?

The components of remote sensing are-

- Energy source
- Transmission path
- Target
- Sensor.

ADDITIONAL

8. Who is a cartographer?

- A cartographer is one who measures, analyzes and interprets geographical information to create maps and charts.
- Cartographers draw maps for political, cultural and educational purposes.

9. What is the extent of India?

The main land of India extends from 8° 4' N to 37°6' N latitude and from 68°7' E to 97°25' E Longitude. Here (°) is degree and (') is minutes.

10. What are the three methods of projection?

Projections are drawn to maintain the shape, area and directions. The three methods are –

- Projection on the surface of a cylinder
- Projection on to the surface on a cone
- Projection directly onto a flat plane

11. What are the three types of map symbols?

- Point symbols - Buildings, dipping tanks, trigonometrical beacons
- Line symbols - Railways, roads, power lines, telephone lines.
- Area symbols - Cultivated lands, ponds, orchards and vineyards.

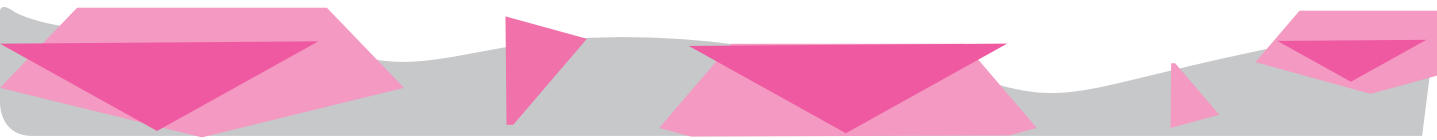
V. GIVE REASONS:

1. Satellite imageries stimulate map making.

- Satellite images which are accurate photographs of the Earth's surface allow cartographers to precisely determine the location of roads, cities, rivers, and other features on the Earth.
- These images help cartographers create maps that are more accurate than ever before.
- Satellite images are great tools that allow cartographers to stay up-to-date.

2. Map is the basic tool of a geographer.

- Map is a two-dimensional drawing of the earth's surface. It can be very simple or very detailed.
- It shows natural landmarks like mountains and lakes and also show man-made boundaries like state lines or roads and trails.
- For centuries, maps have been the primary way to record geographic information and the primary way to get around.



3. Grid references are essential to find the exact location of places on a map.

- The local of a place can be simply defined by its latitude and longitude.
- In normal practice, latitude is started first and then comes the longitude.
- The latitude and longitude of a place can be expressed in units of degree, minutes and seconds.

ADDITIONAL

4. Web cartography is one of the modern making techniques.

- The term Web cartography is associated with the design, production, display and use of maps over the Web.
- The computer revolution transformed cartography replacing the traditional map with a digital spatial database.
- The arrival of the World Wide Web in the early to mid 1990's has changed the way in which maps are created, published and used.

VI. DISTINGUISH BETWEEN THE FOLLOWING.

1. Globe and Map.

S.No	Globe	Map
1.	Globe is the three dimensional of the Earth.	Map is a two dimensional presentation of Earth.
2.	Globe is not portable and use	Map is easy to use and portable.
3.	Rotation and revolution of the Earth can be taught with the help of globe.	Map can not be used for these purposes.
4.	Conventional symbols cannot be shown on the globe.	Convention symbols are useful in the maps

2. Large scale map and Small scale map:

S.No	Large scale maps	Small scale maps
1.	Large scale maps show a small area in greater detail	Small scale maps show a larger area in less detail.
2.	They are guide maps or topographic maps	They are wall maps or atlas maps.
3.	Details of cities, towns and villages are shown in these map	They show important features like mountains, plateaus, continents and countries.
4.	The scale may be 1cm = 50 m or 1 km	The scale may be 1cm = 100 km.



3. Aerial photographs and Satellite imageries:

S.No	Aerial photographs	Satellite imageries
1.	It covers a small area normally a few square kilometers.	It covers a very large area which ranges from 3,500 to 30,000 Square Kilometers.
2.	These photographs are taken from an altitude of a few hundred metres.	Satellite imageries are taken from an altitude of a few hundred Kilometers.
3.	Surveys are highly expensive.	Much less expensive compared to aerial survey.
4.	Surveys are adversely affected by bad weather.	It is not affected by bad weather.

4. GIS and GPS

S.No	GIS	GPS
1.	GIS stands for Global Positioning System.	GPS stands for Geographical Information System.
2.	GIS is a software program that helps people use the information that is collected from the GPS satellites	GPS uses satellites that orbit Earth to send information to GPS receivers that are on the ground

7

GEOGRAPHY

VII. ANSWER IN PARAGRAPH.

1. What do you mean by the term 'scale of the map'? Explain its classifications.

A scale is a ratio between the actual distance on the map to the actual distance on the ground. Scale makes it possible to reduce the size of the whole Earth to show it on a piece of paper. Scales can be represented in three methods. They are-

Statement scale:

- The statement scale describes the relationship of map distance to ground distance in words.
- For example, one centimeter is to ten kilometers. It is expressed as 1 cm = 10 km.

Representative Fraction:

- It describes the proportion or ratio of the map distance to ground distance.
- It is usually abbreviated as R.F.
- It is stated as 1/100000 or 1:100000. This means that one unit on the map represents 100,000 of the same unit on the ground.

Liner (or) Graphical scale:

- Liner Scale is represented by a straight line divided into equal parts to show what these markings represent on the actual ground.
- This scale helps in the direction measurement of distance on the map.

2. Write a note on directions with relevant diagram.

- Maps are drawn normally with north orientation.
- North direction in a map is always towards the North Pole of the Earth.
- The top of the map always show the North and the bottom is the South.
- The Four directions such as East, West, North and South are called the Cardinal directions.
- Direction is usually indicated on a map by a North-South line with the North direction represented by an arrow head

3. Explain the major uses of GPS? Explain about any one.

Major uses of GPS:

- Helps in providing accurate transport data
- Helps in minary searches and rescue in wars
- Acts as a reliable tourist guide
- Helps rescue efforts at the time accidents
- Speeding the delivery of emergency services
- Useful to find the lost vehicles

Disaster relief:

Weather forecasting, earthquake monitoring and environment protection can be done effectively by using GPS. During the time of disaster, relief measures can be taken at the right time and right direction with the help of GPS.

4. Bhuvan has tremendous uses for scientists, policy makers and the general public Justify.

- Bhuvan (Sanskrit for Earth) is a free internet based computer application launched by the Indian Space Research Organisation.
- It was launched in 2009 which enables visualization of Indian Remote Sensing images taken over a year ago.
- The Remote sensing images are taken by ISRO's seven satellites including CartoSat-1 and CartoSat – 2.
- Using Bhuvan, one can explore the places of interest, scenes of events in the news and parts around the world by entering the names or places or co-ordinates.
- Bhuvan has tremendous used for scientists, academicians, policy makers and the general public.

ADDITIONAL

5. Write the colour codes that are used with the map symbols.

The following colour codes are used with the map symbols-

Brown:

To mark the land or earth features such as contour lines, prominent rock, sand areas, dunes, secondary of gravel roads brown colour will be used.



Light blue:

This colour is used to mark water features such as canals, coastlines, dams, lakes, ponds rivers and water towers.

Dark blue:

National waterways are marked with dark blue colour.

Green:

This colour is used to mark the vegetative features such as golf course, nature boundaries, orchards, recreation grounds woodland etc.

Black:

Construction features like roads, tracts, railways, buildings, bridges, cemeteries, wind pumps communication towers, excavation sites, mines & boundaries are marked with black colour.

Red:

It is used to mark construction features such as national, arterial and main roads, light houses and marine lights.

Pink:

Pink colour is used to show international boundaries.

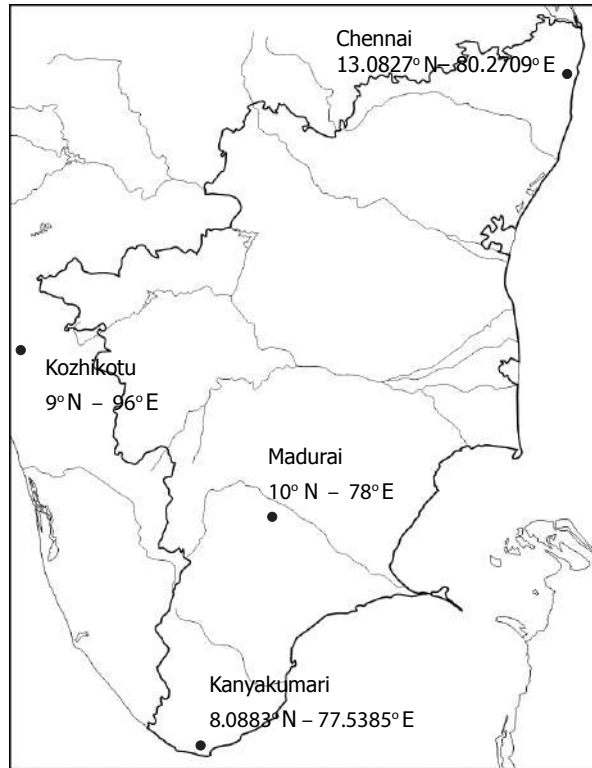
6. Differentiate the Satellite remote sensing and Aerial photography.

S.No	Satellite remote sensing	Aerial photography
1.	High cost of satellite systems. Takes at least 10 years to plan, construct, test and launch	Surveying can be planned and executed in a short time economically.
2.	Satellites collect large amount of data of the entire area in a short span	Takes more time to capture an area. Air craft needs to fly back and forth.
3.	It allows global coverage and does not require permission	It covers a small area and needs permission from authorities.
4.	Satellite circle the Earth. They can repeat and revisit easily	Revisits or repeatability involves extra cost.
5.	Weather does not affect the functioning of satellite.	Adversely affected by bad weather
6.	All information is digital. It can be easily integrated with software for image improvement	It is an analogue record. So, no further improvement is possible after obtaining photographs.

VIII. MAP EXERCISE.

1. With the help of an atlas, mark the following on the outline map of Tamil Nadu.

- The latitude and longitude of Chennai.
- Mark the city located at 10° N and 78° E
- Locate the city approximately on 11° N and 78° D
- Find the latitude and longitude of Kanyakumari and mark it.



IX. HOTS.

1. Can you imagine a world without satellites?

- It is very tough to imagine the world without satellites and people have to forget about the usage of GPS without satellites, which all of us are used to.
- If you have to go anywhere, you should know the route, as no GPS will be available to show you the route map. You would go way back to 20th century technology.
- The system that is used to check the weather conditions by the airline people would not be available. No broadband, 4G/5G services would be available.

2. Imagine you are a cartographer. Draw the map of your area.

If I were a cartographer, I would know the physiography of my village. According to that, I design my village and I safeguard the water Reservoirs like ponds, lakes, rivers, wells, canals and also I increase the ground water level. Then I protease my village as sustainable development village.

