1. Define cartography and its type?
   It is the study & practice of making maps.

   **TYPES**
   1. Analog cartography – to prepare the plastic films.
   2. Digital cartography – use of electronics in particular computers

2. List out the need for map
   - To reduce the spatial characteristics of a large area, a portion or all of the earth or another celestial body.
   - To put it in map form to make it observable.
   - To refer to these enlarging activities as cartography, the resulting images are sometimes called maps.
   - Wall maps used by civilian & military security groups to keep track of events & forces.

3. What is the purpose of maps serve?
   - Some maps is to store geographic information in spatial format to serve mobility & navigation needs.
   - Use to summarize voluminous statistical data & assist in spatial forecasting & spotting trends.
   - To visualize what otherwise would be invisible.
   - To serve at attest several of these objectives simultaneously.

4. List out the basic characteristics of maps
   Locations, Attributes, Scale, Geometrical transformations, Map projection, Plane coordinates grids, Abstraction, Signs, Symbolism, and Marks.

5. Define Scope of cartography
   Cartography played by two actors. Map maker, map user.

   **Map maker:** - to select information from the data domain & put it into map format.

   **Map user:** - The user then observes & responds to this information.
6. List out the four purpose of cartography?

1. Collection & selecting the data for mapping.
2. Manipulating & generalizing the data, designing & constructing the map
3. Reading or viewing the map.
4. Responding to or interpreting the information.

7. Define Geometry?

- To provide a means for determine the shape & size of the earth.
- To determine the relative position of environmental feature.
- To provide a foundation for the development of locational reference system (latitude/longitude).
- The idea of geometry led to a dramatic increase in mapping accuracy & greatly facilitated mapping & map use processes.

8. What do you mean by dark ages?

Dark ages:-

The most dramatic challenge to the dominance of geometry in mapping occurred in medieval times. This period in western civilization is called the dark ages.

9. Define church maps

The difference between geographical knowledge & church beliefs could not be reconciled, figurative world maps were the result.

10. Define globalism

Time of global exploration & conquest by European fortune hunters, colonists & missionaries

11. Write short note on science and measurement

- Major conceptual shift in mapping came with the idea of western science.
- The scientific method was based on the concept of order and the notation that order can be explained by cause effect relations.
- Scientists added the idea of change or probability to their basic tools.
- Careful observation & measurement achieved high status in many fields during this period in the west, called the enlightenment
12. Write the two important functions of map?
1. The digital database as replacing the printed map as the storage medium for geographic information.
2. Cartographic visualization on many different media now satisfies the second function served previously by printed maps.

13. Draw flowchart of cartography representation
14. Draw the flowchart of scope of cartography?

Map Maker

Data ↔ Map

Map

Cognitive Sciences

Environment Sciences ——— Mapping Sciences

16 MARKS

1. What do you mean by cartography & explain the cartography development?
2. Discuss about the basic characteristics of maps
3. What do you mean by categories of maps? Explain each type.
4. Explain the history of cartography
5. Detailed discuss about the technology development of cartography
UNIT – II
EARTH
TWO MARKS

1. Define earth & its different shape of earth?

To connect the soil, air, water particles.

Three ever more accurate approximations to the earth’s shape.

➢ (i) sphere
➢ (ii) ellipsoid
➢ (iii) geoid

2. Differentiate between spherical, ellipsoidal and geoidal earth?

<table>
<thead>
<tr>
<th>S.No</th>
<th>Sphere</th>
<th>Ellipsoid</th>
<th>Geoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In Pytha goas (6th century B.C) that humans must live on a body at the “perfect shape – a perfect sphere.</td>
<td>Newton proposed, the theory at gravity would be a slight bulging of the earth at the equator due to the greater centrifugal force generated by the earth’s rotation.</td>
<td>An even more faithful figure of the earth called the geoid.</td>
</tr>
</tbody>
</table>

3. Write the different shapes of the earth where can be used?

➢ Authalic sphere is the reference surface for small – scale maps of countries, continents & larger areas.
➢ Ellipsoid, the reference surface for these large scale maps.
➢ The geoid is the reference surface for ground surveyed horizontal & vertical positions.

4. Write short note on great circle?

➢ The circle established by the intersection of such a plane with the surface divides the earth into hemispheres & is called great circle.
➢ All parallels other then the equator and called small circles.

\[
C = 6371 \text{ km. } 2\pi, \cos \theta, \theta \text{ is the parallel’s geographic latitude.}
\]
5. Differentiate between latitude, authalic latitude & geodetic latitude?

<table>
<thead>
<tr>
<th>S.No</th>
<th>Latitude</th>
<th>Authalic Latitude</th>
<th>Geodetic Latitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To locate our north-south position depends on the regular curvature of the earth’s surface.</td>
<td>It may be defined as the angle formed by a pair of lines extending from the equator to the center of the earth &amp; then from the center to our position.</td>
<td>Latitude on the ellipsoid is called geodetic latitude. Angle formed by a line from the equator toward the center of the earth</td>
</tr>
</tbody>
</table>

6. Define Longitude?

- The choice of the starting line called the prime meridian.
- Longitude can be thought of as the angle formed by a line going from the intersection of the prime meridian & the equator to the center of the earth & then back to the intersection of the equator & the local meridian passing thro the position.
- Longitude ranges from 180°W to 180°E.

7. Write short note on scale factor & Transformations?

- The earth has been mapped on a globe reduced to the size (scale) chosen for the flat map. Hypothetical globe the reference globe.
- The globe’s surface is mathematically transformed, point by point onto a flat surface the 3D information on the globe’s surface is how displayed on a two – dimensional flat surface.
- The reference globe will have a given representative fraction (RF) called the principal scale.

  Scale factor: - actual scale / principal scale.

8. Define Map Scale?

The ratio or proportion between measurements on the map to those on the earth. This ratio is called the map scale.

9. Define verbal statement, bar scale & Area scale?

Verbal Statement

Meaningful map distance in relation to meaningful earth distance.

One millimeter represents one kilometer.
Graphic (or) Bar Scale

It is a line symbol, subdivided to show map lengths of earth distance units.

Area Scale

It refers to the ratio of areas on the map to those on the earth.

10. Define scale factor?

\[ SF = \frac{\text{actual RF}}{\text{Principal RF}} \]

11. What do you mean by Representative fraction (RF)

Simple fraction or ratio 1:1,000,000 (or) \(1/1,000,000\).

1mm (or) 1cm (or) 1 inch on the map represents 1,000,000 millimeters, centimeters or inches on the earth’s surface.

12. How do you determine the scale of map?

- To determine the scale of a map on which scale is given.
- To determine map scale using area measurements.
  1. To final region of known size
  2. To compute the area of that region on the map
- To determine the proportional relation between map area & earth area.

13. Write short note on transforming the map scale?

- To change a map’s size-by reducing or enlarging it.
- To change the scale of a map that has an area scale, convert the known area scale and the desired area scale to a linear proportion

16 – Marks

1. Define map transformation & explain each method?

2. Detailed discuss about the type of map projection?

3. Define Reference system & coordinate system and explain the types of coordinate system
UNIT-III
SOURCES OF DATA
Two Marks.

1. Define geodesy & spherical geometry:
   Geodesy:
   - Study of the shape & size of the earth.
   Spherical geometry:
   - The great attractiveness of this flat earth conception is that it lets us avoid
     the complicated three dimensional spherical geometry that geodesists must
     use.

2. What do you mean by principles of surveying?
   - To define the location of a point in our environment.
   - Surveyors determine new positions with respect to an existing reference feature.

3. Define atmospheric absorption, atmospheric windows, spectral response, and
   spectral signature?
   Atmospheric absorption:
   - To reduce the percentage of energy transmitted thru the atmosphere to the ground
     & back thro the atmosphere to the sensory instrument.
   Atmospheric windows:
   - Places of low absorption (high % transmission).
   Spectral response:
   - Ground objects selectively reflect & absorb electromagnetic energy due to
     difference in the molecular composition of their surfaces.
   Spectral signature:
   - Graphing the typical reflectance of each wave length within one or more bands
     defines an object.

4. Write the difference between Passive sensors & Active sensors?

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Passive sensors</th>
<th>Active sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Detect &amp; record solar or terrestrial energy either reflected or emitted by ground object.</td>
<td>Radar or sensor generates the energy that illuminates the ground and Subsequently reflects from objects back to the sensor.</td>
</tr>
</tbody>
</table>

5. Write short notes on Videography?
   - The detection & recording of electromagnetic energy as videos images.
   - Consists of a video camera, a video recording device, a television monitor,
     photographic hardcopy device, frame grabber.
   - To convert video images into digital image.
   - Video tubes sensitive to the blue, green, red, & near IR bands.
6. Define censes & Geocoding?

Census:
- To identify & record all members of a population.
- A census is time consuming, laborious & costly when a population is large & widely dispersed.

Geocoding:
- Method of data recording.
- Locational reference is associated with the feature attribute information.
- This practice of attaching locational information to census data.

7. Different between the vector Geocoding & Raster?

Vector Geocoding:
- The basic coding unit is a point defined by a coordinate pair (2D), triplet (3D).
- Line feature are treated as series of points.
- Area features are treated as lines that.

Raster Geocoding:
- This is based on matrix or grid notation.
- A position is defined by its row & column cell which is called a pixel.

8. What do you mean by aggregation?

- To protect the identify of individual population elements & to encourage honest responses, it is sometimes desirable to guarantee anonymity.
- Maps based on region totals tend to be more abstract & prone to inaccuracy then those based on feature position data.
- To understand the relation between population distributions in the environment.

9. Write short notes on census region?

- To define by political boundaries, countries, states, provinces, townships & cites are widely used for data aggregates.
- Do not have to be political units of course.
- To aggregate by administrative regions such as postal zip codes or telephone area codes.

10. Define sample size, sampling unit?

Sample size:
- Sample size is directly related to adist variability.

Sampling unit:
- Spatial sampling units are point, lines called transect & area called quadrates.

11. Write the difference between the spatial sampling & stratified sampling?

Spatial sampling:
- When the census is not appropriate or too costly the alternative is a spatial sample.
The aim is to make observation at a limited number of fully chosen locations that are representative of a distribution.

**Stratified sampling:**
- A strategy called stratified sampling is widely practiced in national polls & rating surveys.
- To divide a region into relatively homogeneous sub regions considered to bear some relation to the phenomenon being sampled. The sub-regions are called strata.

12. **Different between digital cartographic data base & digital geographic data base?**

*Digital cartography data:*  
If geographical data are first used to make a map & then the map is subsequently digitized.

*Digital geographic reality data:*  
A digital spatial data set represents a certain modal of geographic reality is referred to as conceptual.

13. **What do you mean by modeling surface & modeling time?**

**Modeling surfaces:**
- To model by vector data.
- Contour lines, spot elevations.
- To model by raster data
- Array at heights (digital elevation model).
- To be composed of between a designated route of travel & the transportation features.
- To be above between the features in an over pass or under pass of a freeway interchange.

**Modeling time:**
- Satellite data sets from many different time periods will be referenced to a uniform geographic grid.
- You must encode the following information into the database.
- If the feature presently exists.
- When the feature ceased to exists.

16 – MARKS
1. **Explain how do you collect the earth data from the survey measurement technology?**
2. **Discuss about what are the different can adopt the finding horizontal position in survey method?**
3. **Explain the different methods at finding vertical position in survey?**
4. **Discuss about the automated surveying system & satellite methods?**
5. **Define aerial photography, aerial camera & explain the different types of photographic films?**
6. **Discuss about the types of imaging instructions with neat sketch?**
7. Explain the types of scanner & sensor to be used in remote sensing satellites?
8. Explain the types of ground control satellite & weather satellite?
9. List out the availability of remote sensing data & explain its types?
10. Define map digitizing & explain the various methods of map digitizing?
UNIT-IV
PERCEPTION AND DESIGN

1. What are the objectives of map design?
   - To evoke in the minds of viewers an environmental image appropriate to the map’s purpose.
   - To assign specific meaning to the distinctive marks you use.
   - To arrange the marks in a total composition that will make the viewer see the result you intend.
   - The communication objectives of cartography range along a continuum from general reference maps, such as atlas or topographic maps, to thematic maps, such as maps of population or rainfall.
   - General reference Map-To displays a variety of geographic information.
   - Thematic Map-To concern with portraying the overall form of a given geographical distribution.

2. Write short note on functional design
   - The functionalism of cartography together with the limitations imposed by external controls on the mapping process
   - Many constraints on the cartographer to allow “full freedom of expression”
   - These factors suggest that mapmaking, like architecture is a mixture of art, science and technology.
   - It involves purposeful assembling, processing and generalizing diverse data and then symbolically displaying them as a meaningful, functional portrayal.
   - It is normal for “intellectual” and “visual” objectives to be in conflict.
   - To develop a strong graphic contrast at a coastline, you would make one side dark and one light.
   - To develop traditions and conventions.
   - To disregard the powerful forces associated with these traditions and conventions would in convenience map users, which would in itself be poor design

3. What are the different types of stages include the design process
   **First Stage**
   - Heavily on imagination and creativity
   - The term graphic ideation is used to describe this intuitive process.
   - To decide on the type of map, spatial format (size and shape), basic layout, and data to be represented, mapping technique, and so on.
Second Stage
- To develop a specific graphic plan.
- To decide on kinds of symbolism, number of classes and class limits, color use, topographical relationship, general line weights, and the like.

Third Stage
- To prepare detailed specifications for map construction, whether by manual & automated method.
- To define all symbols, line, weights, screens, colors, lettering, sizes & so on.
- Digital methods have significantly affected the map design process

4. Define graphic elements
   - Point-A sense of position
   - Line-Linear array points
   - Area- direction & position and can be thought of as a two dimensional array of points

5. What do you mean by visual variables?
   - Shape, size, orientation, or color (hue, value, and chroma) is called as primary visual variables.

6. Explain about the type’s pattern in visual variables
   - **PATTERN**: It exhibits the characteristics of arrangement, texture (spacing), and orientation. This is also called as secondary visual variables.
   - **Arrangement (Pattern)**: To the shape and configuration of component marks that make up a pattern.
   - **Texture (Pattern)**: To the size and spacing of component marks that make up pattern.
     - To produce by a close spacing of small marks.
     - To produce by an open arrangement of large marks.
   - **Orientation (Pattern)**: To the directional arrangement of parallel rows of marks as they are positioned with respect to some frame of reference.

7. What is the classification of classes of symbols?
   1. Point-emphasizing symbols: individual signs, such as dots, triangles and so on, used to denote a position, the location of a feature, the intensity at a place or a representative location for spatial summary data. Examples include a coordinate location, a radio tower
   2. Line-emphasizing symbols: individual linear signs used to represent a variety of geographical phenomena. Lines depicting rivers, roads and political boundaries.
3. Line-emphasizing symbols: Area symbols are markings extending throughout a map area to indicate that the region has some common attribute. Such as water, administrative jurisdiction.

4. Volume-emphasizing symbols: To represent the vertical or intensity dimension of a spatial phenomenon through space. ex Landform mapping.

8. List out the design principles in the cartographic map design

   **Legibility:** To be sure they are easy to read and understand.
   
   To choose the proper graphic marks and portray them clearly.
   
   The shapes of point symbols must not be confusing.

   **Visual Contrast:** The critical eye seems to accept moderate and weak graphic distinctions passively and without enthusiasm.

   **Figure-Ground Organization:** A figure on which your eye settles, and the amorphous ground around it. Closed forms, such as islands and countries.

   Familiarity has a great influence on the promotion of figure.

   Lightness (value) difference promotes the emergence of figure.

   Good contour is the graphic equivalent of the term “logical” or “unambiguous”.

9. Write the physical aspects of color with neat sketch

Color is proportion of energy absorbed or reflected at various

   Wavelengths, Relative to a ‘white standard’

   Pure spectral hues vs. dominant wavelengths

![Spectral Reflectance](image)

Numeric color descriptions (parameters of the curve)

- Position (dominant wavelength) = hue position
- Shape (chroma, intensity) = saturation variance
- Height (lightness) = value amplitude
10. List out the different ways to print colors

There are two ways to print colors:

1. Completely cover the area with an ink of the desired color

2. Print arrays of tiny, closely spaced dots of one or more basic colors which, when overlaid and seen in combination, form the desired colors

11. What are the different types of printing ink specification?

- Standardized color matching system
- Pantone matching system

The basic PMS ink colors are the four process inks-cyan, magenta, yellow, and black-plus white, warm red, robin red, rhodamine red, purple, process blue, reflex blue, and green

12. Write short note on preprinted tints & patterns

Tints are available in different percentages and rulings. Most commercially marketed tints range from 10 to 70 percent black in rulings from 27.5 to 85 lines per inch.

When all tints and patterns have been burnished onto the map sheet, a lithographic negative of the sheet is made for plate making. Tints and patterns can also lighten or darken by several percent due to film exposure and processing inconsistencies.

13. Define screen tint

A large number of color from a small number of printing links by breaking each colored area into an array of tiny dots of a given size. This is done using screen tints, which are film sheets filled with clear or black dots of the same size arranged in a rectangular pattern.

Screen tints are used with open window negatives, which mask out all light coming through the screen except within the desired areas on the map.

Each screen tint is specified by its ruling and its percentage. The ruling is the number of lines of dots per inch. Screen rulings of 65, 85, 100, 150 lpi screens is considered coarse because individual dots can be seen, while a 150 lpi set is considered fine, since no pattern is visible and only a smooth tonal effect results. Cartographers usually use the 133 or 150 lpi.

The screen tint percentage is the percent of incident light transmitted through the screen to a printing plate. This means that screen tints are film “negatives”; an 80% screen is composed of small opaque dots, whereas a 10 percent screen is made of small transparent dots.

14. Write short note on two-ink combinations

Two inks provide a vastly greater number of color combinations. For instance, 10 gradations of two printing inks give 100 different color combinations. The color combinations on
the chart will be specified by the component screen tint percentages, and the small errors in printed dot sizes are of no consequence.

15. Define process color combinations

The two color combination method is easily extended to three printing inks, again greatly increasing the number of color combinations. However the fullest color palette is obtained by going one step further and using four color process printing.

The four color process ink colors are the three subtractive primaries: cyan, magenta and yellow plus black. When the many combinations of screen tint percentages are overprinted, the process inks produce the greatest range of hues possible through lithographic printing.

16. Write the equation of monochrome screen tint combination

The following equations for two \((P_1+2)\) and three \((P_1+2+3)\) screen combinations:

\[
P_{1+2} = P_1 + P_2 - \frac{P_1 \times P_2}{100}
\]

\[
P_{1+2+3} = P_1 + P_2 + P_3 - \frac{P_1 \times P_2 + P_2 \times P_3 + P_3 \times P_1}{100} + \frac{P_1 \times P_2 \times P_3}{10000}
\]

17. List out the types of screen tints

Bi-Angle Screen Tints, Parallel Line Screens, Random Dot Screens, Pattern Screens

18. Define moiré avoidance

Screen tints must be used in a particular manner to avoid introducing a usually undesirable “moiré” pattern into a colored area.

Moiré patterns are minimized by orienting screen tints 300 apart, and 150 apart when a 300 angular separation is not possible. The normal practice is to orient all black ink screen tints at 450 from horizontal, magenta screen tints at 750, cyan screens at 1050, and yellow tints at 900.

19. How do you links with color models

To control color effects in map design and production.

To take advantage of the insight each model provides.

To must link model attributes to tint screen percentages and printing ink characteristics.

20. List out the types of tones in map design

Three main types of tones:


21. Define digital screen tints & patterns

The latest and most dramatic development in screen tint, halftone and pattern production is electronic image setting. The computer driven scanner arranges clusters of microscopic dots up to 2,540 per inch-to form screen dots, patterns and all other map symbols.

Each digitally specified tint or pattern is translated into an appropriate dot size and shape, according to the ruling selected. The translation process is called dithering.
22. **Write short note on dithered screen tints**

Dithering is based upon dividing an area into cells which are further subdivided into a large number of pixels. Cells may be squares or hexagons that completely fill the area. These can be rotated to any desired screen angle. Square cells oriented horizontally will be examined here.

To make black or clear

23. **What are the resolution can be used the color and pattern for computer plotters & printers**

- High resolution laser image setting devices creating film negatives or positives for lithographic printing.

- Lower resolution computer output devices such as line plotters or dot matrix, electrostatic, inkjet or thermal printers.

24. **Define random dithering**

Randomly blackening the pixel in each cell called random dithering. This method suffers from the ever increasing number of random number pairs that must be generated to created darker tints

\[ N = \ln \left( \frac{1-T}{1-P} \right) \]

T=Proportion of each cell to be blackened

P=Proportion of the total cell occupied by each pixel

16 MARKS

1. **What are controls & planning can be used on map design & explain it**
2. **Explain about the function of color in map design**
3. **Detailed discuss about the CIE color models**
4. **Explain about the munsell system**
5. **Explain about the natural color system (or) computer electronic display color models**
6. **Detailed explain the line plotter color & pattern creation**
7. **How do you link between electronic & hardcopy color, explain it**
8. **Explain the different types of progressions in the color pattern**
9. **Define Typography. & explain the typography & lettering the map**
10. **Detailed discuss about the map completion with various stages**
1. **Define Selection**

- As the term is used here, selection is the intellectual process of deciding which classes of features will be necessary to serve the map’s purpose.
- No modification takes place; the choice is either to portray roads or not to portray roads, to include or not include major hydrographic features, or to name not name all cities with populations over 150,000.

2. **List out the concept of Generalization**

- classification
- simplification,
- exaggeration,
- symbolization and
- induction

3. **Define map scale?**

   The scale of the finished map also has a major impact on the amount of generalization that will be used. The smaller the scale, the more generalization will usually be required. At large scales, most of the generalization is classification and symbolization. At smaller scales and in thematic mapping, the situation is quite different. Simplification and exaggeration become the most important elements of generalization, although classification is important as well.

4. **What do you mean by quality and quantity of data**

   - The quality and quantity of data available to cartographers also greatly affect the generalization processes. The more reliable and precise the data, the more detail is available for presentation.
   - One of the most difficult tasks for cartographers is to indicate to map readers the quality of the data used. When writing or speaking, we use words such as “almost”, “nearly”, and “approximately”. These words let people know how precise we mean to be. It is not easy to do the same thing on a map.

5. **Define Typographic map**

   Topographic maps are maps at large and medium scales which incorporate a huge variety of information. The basic coverage (a country’s largest map series) is based on measurements made in the field and/or from aerial photographs. Derived topographical maps (of medium and small scales) are prepared by reduction and generalization from the original basic maps.
6. What are the different classes of topographic (cartography) maps?

According to International Cartographic Association (1984) it is possible to classify topographic maps as being either:

- **Official Cartography**: maps that are edited by official institutions such as Bundesamt für Landestopographie (Switzerland), Institut Géographique National (France, Belgium), etc. Commercial Cartography: maps that are edited by private companies as Orell Füssli (Switzerland), etc.

- **Commercial Cartography**: maps that are edited by private companies as Orell Füssli (Switzerland), etc.

Another important classification criterion is the scale. One can differentiate within topographic maps:

- Large scale: larger than 1:25 000
- Medium scale: 1:25 000 to approximately 1:250 000
- Small scale: smaller than 1:250 000 to approximately 1:2 500 000
- Very small scale: smaller than 1:2 500 000, usually atlas-maps

7. What do you mean by three major groups of features?

- **Relief**: Depicted with brown contour lines that show hills, valleys, mountains, plains, etc. Elevations are given in meters (or feet) above mean sea level. There are also spot elevations (shown in black), where lake level, summit of a hill or road intersections are marked for elevation.

- **Water features**: Depicted in blue, they represent oceans, lakes, rivers, streams, swamps, etc.

- **Cultural features**: Depicted in black, they represent all the man-made features: buildings, roads, railroads, land boundaries, etc.

8. Write short note on satellite image data

- Landsat Multispectral Scanner (MSS), optomechanical scanner with 4 spectral bands in the visible and near infrared with a resolution of 80 m. Image format 185 x 185 km2, no stereo capability.

- Landsat Thematic Mapper (TM), optomechanical scanner with 6 spectral bands in the visible and near infrared with a resolution of 30 m and one thermal band with a resolution of 120 m. Image format 185 x 185 km2, no stereo capability.
SPOT Sensor HRV, multispectral mode (XS), optoelectronic scanner with 3 spectral bands and a resolution of 20 m. Image format 60 x 60 km2, stereo from two different orbits.

SPOT Sensor HRV, panchromatic mode (P), optoelectronic scanner with one panchromatic band and a resolution of 10 m. Image format 60 x 60 km2, stereo from two different orbits.

9. What are the materials can be used in map production?

The earliest maps found were made on clay tablets. Maps were produced on leather, stone, and wood.

10. What do you mean by process of making maps?

The way maps are made has also changed. Originally, maps were produced using land surveying, triangulation, and observation. As technology advanced, map were made using aerial photography, and then eventually remote sensing, which is the process used today.

Today, however, maps are produced on computers, using software such as GIS or Geographic Information Systems.

11. Define appearance of map

The appearance of maps has evolved along with their accuracy. Maps have changed from basic expressions of locations, to works of art, extremely accurate, mathematically produced maps.

PART-B

16 MARKS

1. Briefly explain about the elements of generalization concepts
2. Discuss about the production, revision & content of topographic maps.
4. How do you help the satellite image in cartographic maps, explain it
5. Define map reading and explain the fundamental tasks of traditional cartography
6. Explain the different types of maps based on the different methodology
7. Detailed discuss about the Map types, Define map series and types of map series