1) **The following terms are related to satellite remote sensing. Explain them.**
a. Spectral signature
b. Satellite imagery. c. Spatial resolation.

a. Spectral Signature

The sensor records the electromagnetic radiation either reflected or emitted by objects. However each object reflects electromagnetic radiation differently. The amount of energy reflected by each object is its spectral signature.

b. Satellite Imagery

Different types of scanners capable of recognizing specific areas in the electromagnetic spectrum are mounted on the artificial satellites. These scanners recognize the different objects on the basis of their spectral signatures and transmit the

data to the ground control stations in digital form. These are analysed with the help of computers and transformed into images. These are known as the satellite imageries.

c. Spatial Resolution

The sensors in the satellites cannot recognize all objects on earth. The size of the smallest object on earth that can be recognized by the sensor is the spatial resolution of that sensor.

2) **What change does the satellite image exhibit as its spatial resolution decreases?**

As spatial resolution decreases satellite pictures of more areas are pictured. So it represents objects with less quality.

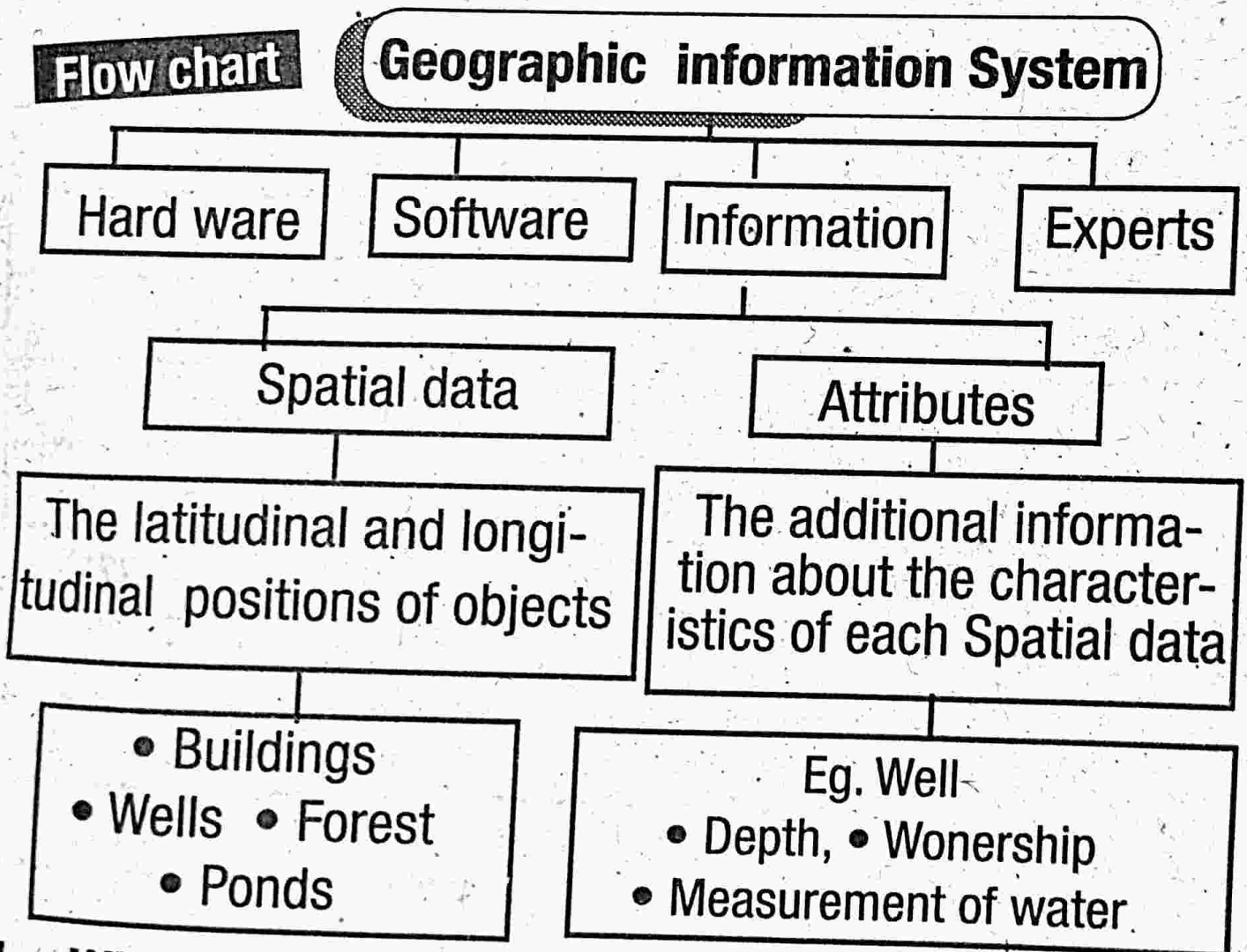
3) **Prepare a list of the uses of remote sensing technology.**

Answer

- For weather observations
- For ocean explorations
- For understanding land use.
- 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 places with ground water potential.
- For planned forest protection.
- For controlling pest infections.
- For weather forecasting.
- For observing pollution.
- For studying about urbanization
- For observing projects of forestation.
- For the protection of bio-diversity.

Geographic Information System

Flow chart



1. What are the uses of softwares of Geographical Information System?

Softwares of Geographical Information System can exhibit, renew and produce new maps in addition to the analysis and preparation of maps and graphs based on data acquired.

2. What is geographic information system?

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.

3. Observe the picture given in the textbook page 103 and explain the different stages of Geographic information system.

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 into products either in the form of maps, tables or digital data.

4. Two kinds of data are necessary for data analysis in Geographic Information System. What are the two kinds of data? Compare them and prepare a note.

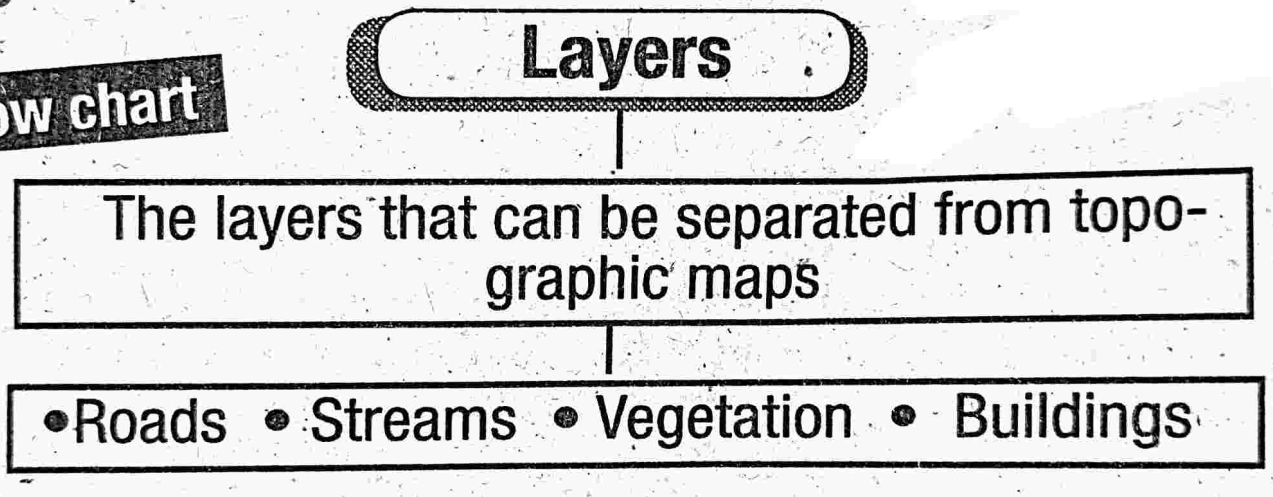
Spatial data and attributes are the two kinds of data.

Spatial data: Each feature on the surface of the earth has a location of its own. Such features of the earth's surface having a specific location are known as spatial data. We can find out the latitudinal and longitudinal location of our country with the help of the website Bhuvan (https: bhuvan – app l.nrse.gov. in) or with an atlas.

Attributes: The additional information about the characteristics of each spatial data on the earth's surface are called attributes. The attributes can be combined with spatial data. If we can collect and include the spatial data and attributes of places in the data base, the GIS can give precise and scientific answers to the various queries about that place.

Layers

Flow chart

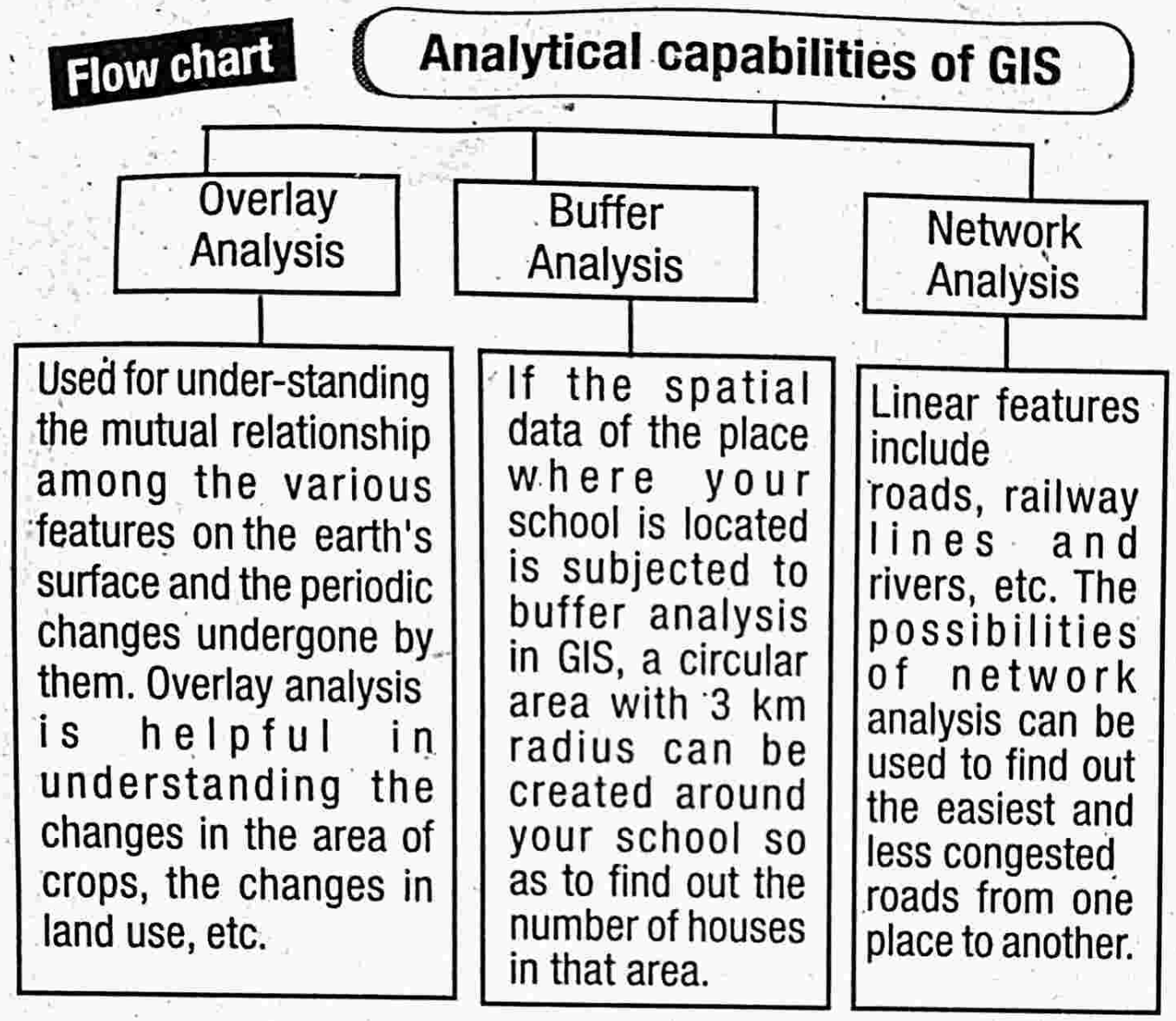


Explain the layers in topographic map.

The thematic maps prepared and stored in Geographic Information System for analytical purpose are called layers. The spatial relationship among the features on the surface of the earth can easily be nderstood by analyzing the appropriate layers.

Analytical Capabilities of GIS

Flow chart



1. What is buffer zone?

A circular zone created around a point feature or a parallel zone created aside a linear feature in buffer analysis is called buffer zone.

2. Tabulate the uses of GIS.

- 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