1. What is GIS? List out its components.

Geographical information system (GIS) is a computer system for capturing, storing, querying, analyzing, managing and displaying geospatial data. A GIS is a computer based system that facilitates the phases of data entry, data analysis and data representation especially in cases when we are dealing with georeferenced data. GIS is working on the principles of geography.

Components of GIS :-

i) Hardware :-

H/w is the computer on which GIS operates. Today, GIS s/w runson wide range of h/w.

ii) Software :-

GIS s/w provides the functions and tools needed to store, analyze and display geographic information eg dbms, GUI

iii) Data :-

Geographic data and related tabular data can be collected in house or purchased from commercial data provider A GIS data will integrate spatial data with other data resources.

iv) people :-

GIS technology is limited value without the people who manages system and develop plans for applying it to real world problems.

v) Methods :-
A successful GIS operates according to a well designed plan and business rules which are models and operating practices unique to each organizations.

2. What is Geospatial technology? What are the different technologies included in Geospatial technology?

Geospatial technologies is term used to describes the range of modern tools contributing to geographic mapping and analysis of earth and human societies.

Geospatial technologies includes following.

i) Remote sensing :-
imagery and data collected from space or airborne cameras and sensor platforms

ii) GIS :-
a suite of s/w tools for mapping and analyzing data which is georeferenced.

iii) Global positioning system (GPS) :-
use to give precise coordinate location to civilian and military user with proper receiving equipment developed by US Department of Defense satellites

iv) Internet mapping technologies :-
s/w program like Google earth and web features like Microsoft virtual earth are changing the way geospatial is viewed and shared.

3. What are the functions and benefits of GIS.

Functions:-

i) Data collection and capture:-
GIS is used to collect data and capture data which are required for input source for digitization process

ii) Data storage and mngt:-
Databases created through GIS can be stored into different media such as harddisk and spatial database are regularly updates

iii) Data Integration:-
GIS makes it possible to link or integrate information collected from various source.

iv) Data conversion:-
GIS helps to convert data from one format to another i.e. raster to vector

v) Data analysis:-
Data can be analyzed by applying appropriate mathematical or statistical algorithms.

Benefits:-

(i) cost saving resulting from greater efficiency by using automatic machines

(ii) Better decisions making
It is used to make better decision about locations

iii) improved communication:-
GIS based maps and ~~virtual~~ visualizations greatly

assists in understanding situations

iv) Better geographic information record keeping :-
It helps to maintaining authoritative record keeping of geography

v) faster and efficient and requires less persons

vi) more robust and resistant to change

4. Write the scope and application areas of GIS.

GIS in recent times has transformed into Geoinformation technology with the integration of mapping techniques, ~~surv~~ surveying, Remote sensing and satellite imagery, photogrammetry, Geography, Geology, Cartography and Global positioning system. GIS can be applied in every sectors. GIS can designed in a proper manner has the capacity of providing quick and easy access to large volume of data of these geographical features

Application of GIS :-

(i) precision agriculture :-
precise plowing, seeding, watering spraying
Automated tractor control

(ii) open pit mining :-
Enhanced mngt of assets, equipment, work progress tracked in real time, remotely

iii) Timing applications:-
communication n/w synchronization and mngt
power grid mngt and fault location

iv) other civilian applications
public safety, scientific research etc.

5. Differentiate between DBMS and GIS.

In geographic information system large amount of data are stored and must be available to multiple users. DBMS were designed to facilitate storage and retrieval of large data collections
DBMS is an interface between users and their databases spatial database include locations. It has geometry as point, lines and polygon. GIS combines spatial data from many sources with many different people.
GIS includes database mngt features but dbms not included GIS features.
GIS is the computer system for capturing storing, checking and displaying data related to earth's surface.
whereas DBMS is s/w creating and managing databases
Example of DBMS is mysql and eg of GIS is geospatial database.

6. Differentiate between Spatial and Attribute data.

Spatial Data	Attribute data
(I) Spatial data are longitude and latitude	(I) Attribute data are monument
(II) Describes absolute and relative location of a geographic features	(II) Describes the characteristics of geographic features
(III) All types of data objects or elements that are present in a geographical space or horizon	(III) Characteristics of geographical features are qualitative and quantative in nature
(IV) Stored in dominant database	(IV) Stored in conventional db
V) ~~It can be used to describe~~ It is the entity type which has attribute data	V) It can be used to describe spatial data


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