

Engg-121 - Common

Give the details classification of surveying explain geodetic survey in short.

→ classification of surveying :

→ There are 6

classification of surveying

1) primary classification.

2) secondary.

3) plane table survey

4) theodolite survey.

5) Tachometric survey.

6) photographic survey.

1) primary classification or primary division:

1) plane surveying.

2) Geodetic surveying.

2) Geodetic surveying:

→ In geodetic surveying

the curvature of the earth is taken into consideration. It is extented over large area of degree than 250 km^2 . The line joining many to points is considered as a curve.

line survey, setting methods and instrument used used in this type of surveying. In this method very high precision or accuracy is required.

Amitar B. Godve

Q. 1

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Define soil erosion. Explain in brief the accelerated erosion.

Soil erosion:

The attachment, transportation & deposition soil particles from one place to another place under influence of wind, water or gravity force called as soil erosion.

Types of soil erosion:

There are three types of erosion.

A) Geological erosion:

B) Accelerated erosion

C) other types of soil erosion:

a) Accelerated erosion:

It is sub classified as

a) Water erosion

b) Wind erosion

c) Water erosion:

i) Rain drop erosion

ii) Sheet erosion

iii) Rill erosion

iv) Gully erosion.

v) Stream bank erosion.

b) Wind erosion:

i) Soil is lost, finely divided
4 day

ii) Soil surface is smooth & bare

iii) Wind is strong to detach the soil
particles from soil surface.

3) **Runoff:-** Enlist types of runoff, explain the climatic factor affecting rate in watershed area.

Runoff:-

→ the portion of the rainfall or irrigation water applied which leaves a field either as surface or sub-surface flow.

Types of Runoff:-

There are three types of

- i) runoff.
- ii) surface runoff
- iii) subsurface runoff.

factor affecting of runoff (climatic) :

These are 6 climatic

factors affecting of runoff

i) Types of precipitation

ii) Rainfall intensity

iii) Duration of rainfall

iv) Rainfall distribution

v) Direction of prevailing wind

vi) Other climate factors

→ other factors such

as the wind velocity, relative humidity,

annual rainfall etc. After the water losses from watershed area.

[Q.4]

Describe in brief the principle of operation of centrifugal pump.

principle of operation of centrifugal pump:
→ It consists of two basic parts.

- i) rotary element or impelle.
- ii) stationary element or casing.

principal:

The underlying hydraulic principle is the production of high velocity and the practical transformation of this velocity in pressure head.

In some pumps, a diffuser consisting of series of curved vanes or blades surrounds the impelle.

operation:

- The pump is filled with water & the impelle is rotated.
- ii) the blades cause the liquid to rotate with the impelle and in turn impart high velocity to the water.
- iii) centrifugal force cause it to be thrown out ward from the impelle into causing.

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Define Surveying ? diff. betn the geodetic & plane surveying.

Surveying :

It is the part of determining relative position of different object on the surface of the earth by measuring the horizontal distance between them & by preparing a map to any suitable scale.

	Plane Surveying	Geodetic Surveying
1]	curvature of the earth is not taken into consideration.	In this curvature of earth considered.
2]	This survey is done on smaller area less than 250 km^2 .	This survey is done on large area greater than 250 km^2 .
3)	Required accuracy is comparatively low.	High accuracy is required
4)	Simple method and instrument can be used as the required accuracy is low.	Very difficult method & instrument are used.

objective of surveying:

→ the primary object
of surveying the preparation of plan of
estate of buildings, roads, railways
pipelines, canals etc. of to measure area
of field state nation.

2) object of Geodetic Surveying determine
desire position on the surface of the earth
widely distant point.

(Q. 5)

5) explain the brief the various characteristics of
watershed.

Morphological characteristics of watershed

: The size + shape of

watershed.

i) size (area)

ii) shape

iii) Topography

iv) Geology rocks + soil

v) climate

vi) Vegetation

vii) Land use.

1) size (area):

→ large watershed due to
topography, geology, soil, climate, land use
and vegetation.

2) Shape:

→ several shape like square, triangular,

oval plumb, fern leaf shape etc.

8] Topography :

→ slope, length, degree & uniformity of slope affect the both spread of water & soil loss.

9] Drainage :

→ affect the time concentration.

10] Geology rocks + soil:-

Q. 6.

Define contour & give the character of contour lines

contour :-

" contour is the imaginary line of constant elevation on the surface of the ground "

character of contour :-

1] → All points on contour

line have same elevation

2] contour line close to each other on a plane view represent very steep ground.

3] on uniform slopes contour lines are

spaced uniformly along plane surface.

these lines are straight & parallel to one another.

4] contour lines crosses ridge line at right angle. If contour are convex towards

the stream.

- 3] It can not end anywhere, but close in themselves either within or outside the limits of the map.

[Q. 7]

What is watershed? enlist diff. steps in watershed management.

watershed:

"watershed can be defined as unit of area which covers all the land which contributes runoff to a common point and surrounded by a ridge line"

steps in watershed management:

Recognition phase.
Restoration phase.
Protection phase.
Improvement phase

1] Recognition phase:

1) Recognition problem

2) Analysis of the causes of problem and effect.

3) development of alternative solution of problem.

2] Restoration phase:

1) Selection of best solution to problem identified

2) Application of the solution to the problems of the land

Define and explain the simple leveling method.

leveling :

→ The act determining the relative heights or elevation of point or objects on the earth surface called leveling.

principle of leveling :

1) simple leveling

2) Differential leveling

1) simple leveling :

1] It is simplest operation in leveling

2] when it is required to find the diff. in elevation b/w two points both of which are visible from a single position of level.

2) Differential leveling :

→ This method is used in order to find out the difference in elevation between two points.

1] If they are too apart

2] If the difference in elevation them is too great.

classification of leveling.

1) differential leveling.

2) check leveling.

3) profile leveling

4) cross sectioning

5) Reciprocal leveling.

6) Barometric leveling

7) Hypsometry

Q) How can the evaluation of watershed management be done?

Evaluation:

The process to see the assessment of impact of watershed development programme.

Main objective of watershed development projects.

- 1) control soil erosion.
- 2) reduce siltation of dams
- 3) flood control.
- 4) control runoff and harvest it for use.
- 5) increase productivity per unit area.

defn of Ranging, and explain kinds of ranging?

Ranging:

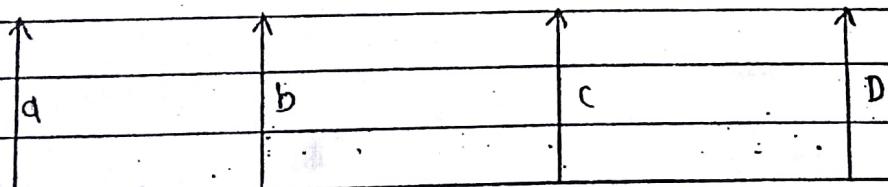
"The process of establishing intermediate point on a straight line between two end point is known as ranging."

Ranging of two kinds:

- 1) direct ranging
- 2) indirect or reciprocal ranging.

1) Direct ranging

→ When intermediate ranging rods are fixed on a straight line by direct observation from one end stations, the process is known as direct ranging.



direct ranging - establishing intermediate point.

2) Indirect or reciprocal ranging:

Indirect ranging is used when the end station are not interviewable due to high ground or hills or if the ends are too long. In such case intermediate points can be fixed on the survey line by a process known as reciprocal ranging.

- 11] What is plane table survey? describe the accessories used in plane table surveying. + describe merits & demerits.

12.]

Plane table surveying:

→ Plane table is a graphical method of surveying in which the field works and plotting is done simultaneously. It is particular adopting in small mapping plane table surveying is used for locating the field boundaries and locating other physical features of land and used for computation area of field.

Method of plane table surveying.

- i] Radiation.
- ii] Interstation.
- iii] Traversing.
- iv] Reection.

Merits:

- i] it is most simple method.
- ii] field book is not necessary.
- iii] No great skill is required for satisfactory map.
- iv] It is less costly.

Demerits:

- i] Plane table essentially a topographical instrument.
- ii] it is not suitable to work in wet climate.
- iii] it is not suitable for accurate work.

12] What is meant by soil conservation? Enlist the agrochemical measures of soil and water conservation?

Soil conservation:

→ It is technique in which deterioration of soil and its losses are conserved by using it within its capabilities & applying conservation techniques for production as well as improvement of soil.

Enlist the Agrochemical measures of soil & water conservation

A) Agrochemical measure.

i) contour cultivation.

ii) strip cropping.

a) contour strip cropping.

b) field strip cropping.

c) buffer strip cropping.

B) Tillage practices.

a) mulch tillage

b) vertical mulching

c) minimum tillage.

d) conventional tillage.

e) leaching.

C) Soil management practices:

1) supporting practices.

2) vegetative grass planting.

- Amar B. Godrej.