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5667

Reg. No. :

Name :

Third Semester B.Tech. Degree Examination, December 2012
(2008 Scheme)
Branch : Civil
08.305 : SURVEYING – I

Time : 3 Hours

Max. Marks : 100

PART – A



Answer **all** questions.

- I. a) What is local attraction ? How is it detected and eliminated ?
- b) Explain strength of fix in Plane tabling.
- c) Explain longitudinal levelling with the help of sketches.
- d) How will you determine the intervisibility of a point if the contour map is given ?
- e) List the information which can be extracted from a mass diagram.
- f) State what errors are eliminated by repetition method in Theodolite Surveying.
- g) Describe the procedure to determine the constants of a tachometer in the field.
- h) Explain location of sounding by range and one angle from the boat. (8x5=40 Marks)

PART – B

Module – I

- II. a) Explain the different methods of designation of bearing;



- b) In order to fix a point 'F', exactly midway between 'A' and 'E' a traverse was run as follows.

Line	Length	Bearing
AB	400 m	30°
BC	500 m	0°
CD	600 m	300°
DE	400 m	30°



Find the length and bearing of 'CF'.

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OR

- c) Explain the various sources of error in plane tabling. How will you overcome them? 10
- d) Define three point problem in plane tabling and explain how is it solved by using tracing paper method. 10

Module – II

- III. a) Explain the two methods of working out reduced levels of points from the observed staff readings. 8
- b) Two bench marks 'A' and 'B' are 1200 m apart across a wide river. The following reciprocal levels are taken with a level.

Level at	Reading on	
	A	B
A	1.485	2.364
B	1.037	1.402

The error in the collimation adjustment of the level is + 0.004 m in 30 m. Calculate the true difference of level between 'A' and 'B' and the error due to refraction.

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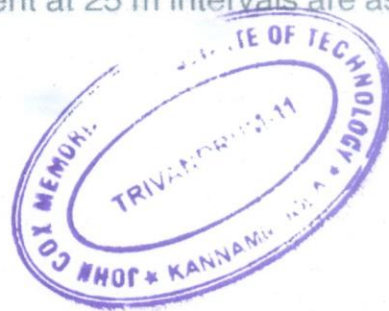
OR



- c) Describe with sketches the characteristics of contours. 8
- d) A railway embankment of formation width 10^m is to be built with side slopes of 1 vertical to 2 horizontal. The ground is horizontal in the direction transverse to the centreline. The centre height of embankment at 25 m intervals are as given below.
1.8, 3.3, 3.6, 4.2, 2.9, 2.6 and 2.2 m.

Calculate the volume of earth filling using

- a) Trapezoidal formula.
- b) Prismoidal formula.



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Module – III

- IV. a) Derive the distance equation for tangential system of tacheometry when both the sightings are angles of depression. 8
- b) To determine the gradient between two points A and B, a tacheometer was set up at another station 'C' and the following observations were made, keeping the staff vertical.

Staff at	Vertical angle	Stadia Readings
A	4°20'00"	1.300, 1.610, 1.920
B	0°10'40"	1.100, 1.410, 1.720

The horizontal angle ACB is 35°20'. Determine the average gradient between A and B. Given the constants of the instrument as 100 and 0.000. 12

OR

- c) List the different methods of soundings indicating the merits and limitations of each. 8
- d) The following observations were made on three stations A, B and C from a station 'P'. Stations 'P' and 'B' being on the same side of line AC.
 $\angle APB = 36^\circ 40'$
 $\angle BPC = 45^\circ 48'$
 AB = 3013.0 m
 BC = 3357.0 m
 and $\angle ABC = 135^\circ 20'$

Determine the lengths PA, PB and PC in order to fix the position of the boat