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(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID : 100303 | Roll No.

B.Tech.

(SEM. III) THEORY EXAMINATION, 2015-16

SURVEYING-I

[Time:3 hours] [Total Marks:100]

Section-A

1. Attempt **all** questions. (2×10=20)

(a) How many ranging rods are required to range a line?

(b) What is the necessity of providing tallies in a chain?

(c) How would you detect the presence of local attraction in an area?

(d) How are centering and leveling done in plane table?

(e) What do you mean by positive RL and negative RL?

(f) How will you distinguish between a valley line and ridge line?

(g) What do the terms 'telescope normal' and 'telescope inverted' mean?

(h) What are the sign conventions of latitude and departures?

(i) What is the degree of a curve?

(j) What is the principle of tacheometry?

Section-B

Attempt **any five** questions from this section. (10×5=50)

The distance between two stations was 1200 m when measured with a 20 m chain. The same distance when measured with a 30 m chain was found to be 1195 m. If the 20 m was 0.05 m too long, what was error in the 30 m chain?

Explain clearly the difference between a prismatic compass and surveyor's compass.

What is orientation? what are the methods of orientation? Describe the methods with a sketch.

What is reciprocal leveling? When it is done? Describe the method along with a sketch.

What are the characteristics of contour lines? State the uses of contour maps.

Describe the process of repetition and reiteration in theodolite survey.

Two tangents interest at a chainage of 1320.5m, the deflection being 24°. Calculate the tangent length, and versed sine of curve, for setting out a curve of 275 m radius.

9. A tacheometer was set up at a station C and the following readings were obtained on a staff vertically held.

Instrument station	Staff station	Vertical angle	Hair readings(m)	Remarks
C	BM	50°20'	1.50,1.80, 2.45	RL of BM=750 .50m
C	D	8°12'	0.75, 1.50, 2.25	

Calculate the horizontal distance CD and RL and D, when the constants of intruments are 100 and 0.15

Section-C

Attempt **any two** question from this section. (15x2=30)

10. Following are the bearings observed while traversing with a compass, an area where local attraction was suspected. Find the correct bearing of the lines and also the true bearings, if the magnetic declination is 10°W.

Line	FB	BB
AB	59°00'	239°00'
BC	139°30'	317°00'
CD	215°15'	36°30'
DE	208°00'	29°00'
EA	318°30'	138°45'

11. The consecutive readings taken with a leveling instrument at intervals of 20 m are 2.375, 1.730, 0.615, 3.450, 2.835, 2.070, 1.835, 0.985,0.435, 1.630,2.2255 and 3.630m. the instrument was shifted after the fourth and eighth readings. The last reading was taken on BM of RL 110.200 m. Find the RL's of all the points.

12. The traverse data containing lengths and interior angles of a traverse are given below. The bearing of line PQ was observed and recorded as S 36° 12'30"E. checks the traverse for angles and closing errors, if any. Find the correct latitudes and departures by transit method.

Line	Length	Station	Included angle
PQ	102.8	P	131°14'30"
QR	98.4	Q	84°19'25"
RS	110.8	R	116°35'25"
ST	82.8	S	119°58'05"
TP	113.29	T	87°54'0.5"

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