

Total No. of Questions : 8]

SEAT No. :

P-1480

[Total No. of Pages : 3

[6002]-107

S.E. (Civil)

SURVEY

(2019 Pattern) (Semester - IV) (201009)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat sketches must be drawn wherever necessary.
- 3) Figures to right indicate full marks.
- 4) Assume suitable data if necessary.
- 5) Use of electronic pocket calculator is allowed.
- 6) Use of cell phone is prohibited in examination hall.

Q1) a) Explain with sketch the fixed hair method of tacheometry, when line of sight is inclined downward (depression) and staff is held vertical? [6]

b) State the different applications of contour lines. [5]

c) A tacheometer was set at an intermediate point between two stations A & B and the following observations were made on the staff held vertical position : [7]

Staff Station	Instrument Station	Vertical angle	Staff reading
A	Intermediate between A & B	+ 4°30'	1.605, 2.400, 3.195
B		+ 2°45'	0.805, 1.345, 1.885

Compute the length AB and RL of point B, if that of A is 395.400m. The instrument and staff are in one line. (take multiplying constant as 100 and Additive constant as 0)

OR

Q2) a) A tacheometer with analytic lens. Having the value of constant 100 was used and the following observations were made on staff held vertical. [8]

Instrument station	H.I. (m)	Vertical Angle	Staff at	Staff Reading
P	1.8	+ 2°40'	M	1.25, 1.93, 2.56
P	1.8	- 4°40'	Q	1.45, 1.85, 2.30

R.L of station M is 50.00 m Calculate the R.L. of P & Q, distance PQ and gradient of PQ line?

P.T.O.

- b) State the different patterns of counter showing natural features. [4]
c) Explain the procedure for finding out tachometric constant. [6]

- Q3)** a) Write a note on necessity and types of transition curves? [5]
b) Tabulate the data required for setting out the circular curve by the deflection angle method using the following information : [8]
i) Chainage of intersection point 1580 m
ii) Angle of intersection = 145°
iii) Radius of curve = 380 m
iv) Peg Interval = 30 m
c) Draw neat sketch of combined curve with its notations. [4]

OR

- Q4)** a) Two tangents intersect at a chain age of 1320.5 m the deflection angle 24° calculate the following quantities for setting out all curves of radius 275 m. [8]

Calculate :

- i) Tangent length
ii) Length of long chord
iii) Length of the curve
iv) Apex Distance
v) Chainage of Curve point & tangency point
vi) Versed sine
- b) Enlist various linear methods of setting out curves and explain any one with sketch. [5]
c) Enlist different linear and angular methods of setting out of curves. [4]
- Q5)** a) Enlist the limitations of the prevalent survey techniques and also give advantages of Space Based Positioning System. [6]
b) Write a note on setting out alignment of road. [6]
c) Explain necessity horizontal and vertical controls in construction activity. [5]

OR

- Q6)** a) State Different names of satellites and Write a note on GLONASS (Global Navigation and Surveying System). [6]
b) Write a short note on survey for drainage line work. [6]
c) Write a short note on checking verticality of tall building. [5]

- Q7)** a) Describe the objective and classification of triangulation survey. [6]
b) State the classification and applications of Photogrammetry in surveying. [6]
c) What are the objectives of hydrographic survey? [6]

OR

- Q8)** a) Explain sounding methods and sounding equipment of hydrographic survey. [6]
b) State the working and uses of Electronic Total Station. [6]
c) Define geodetic survey and state its objectives of study. [6]
