

Total No. of Questions : 8]

SEAT No. :

PD-4048

[Total No. of Pages : 3

[6402]-7

S.E. (Civil Engg.)

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 upward (elevation) and staff is held vertical? [6]
- b) State characteristics and uses 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. [7]

Staff Station	Instrument Station	Vertical angle	Staff reading
A	Intermediate between A & B	+ 8°30'	2.220, 2.400, 2.580
B		- 5°45'	1.250, 1.930, 2.560

Compute the length AB and RL of point B, if that of A is 250.560 m. The instrument and staff are in one line. (take multiplying constant as 100 and Additive constant as 0)

OR

P.T.O.

- 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.

Instrument station	H.I. (m)	Vertical Angle	Staff at	Staff Reading
O	1.650	+5°45'	M	1.250, 2.250, 3.25
O	1.650	+ 6°20'	Q	1.45, 1.85, 2.30

R.L of station M is 125.00 m Calculate the R.L. of O & Q, distance OQ and gradient of MQ line. **[8]**

- b) State the different uses of toposheets. **[4]**
 c) Explain the procedure for tacheometric contouring. **[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]**

Chainage of intersection point 1580 m

Angle of intersection = 150°

Radius of curve = 360 m

Peg Interval = 30 m

- c) Draw neat sketch of combined curve with its notations. **[4]**

OR

- Q4) a)** Two tangents intersect at a chainage of 1250.5 m the deflection angle 25° calculate the following quantities for setting out all curves of radius 315m. Calculate : **[8]**

- Tangent length
- Length of long chord
- Length of the curve
- Apex Distance
- Chainage of Curve point & tangency point
- Versed sine of curve
- Angle of intersection

- b) Enlist various linear methods of setting out curves and explain anyone with sketch. **[5]**

- c) State different types of curves, Explain compound curve with sketch. **[4]**

- Q5)** a) Define Control survey & write a short note on establishing of horizontal and vertical controls. [6]
b) Write a note on setting out Building layout with neat sketch. [6]
c) Write down the applications of space-based positioning system (SBPS). [5]

OR

- Q6)** a) Explain in brief various segments in Space based positioning system. [6]
b) Explain in brief procedure of setting out of Culvert. [6]
c) Write a short note on checking verticality of tall building. [5]
- Q7)** a) Explain triangulation method and trilateration method of geodetic 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) Define hydrographic survey & write a short note on stream gauging. [6]
b) State the working and uses of Electronic Total Station. [6]
c) Differentiate between Map and aerial photograph. [6]

