Total No. of Questions : 8]

SEAT No. :

PE-4231

[Total No. of Pages : 3

[6582]-2
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) ***Draw neat diagrams wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***
5) ***Use of scientific calculator is allowed.***

Q1) a) State the principle of stadia techometry? What are the types of stadia. **[6]**

b) What do you mean by Profile Levelling and Cross Sectioning? **[5]**

c) Determine the grandient from a point A to a point B from the following observations made with tachometer fitted with an anallactic lens. The constant of the instrument was 100 and staff was held vertically: **[7]**

Inst Point	Staff point	Bearing	Vertical Angle	Staff Readings
p	A	134º	+10º32'	1.360, 1.915,2.470
	B	224º	+5º6'	1.065, 1.885, 2.705

OR

Q2) a) Explain the procedure for finding out tachometric constant. **[6]**

b) Enlist & explain various errors in the tachometric survey. **[5]**

c) A tachometer is set up at an intermediate point on a traverse course PQ and the following observations are made on a vertically held staff : **[7]**

Staff Station	Vertical Angle	Staff Intercept	Axial Hair readings
P	+8º36'	2.350	2.105
Q	+6º6'	2.055	1.895

The instrument is fitted with an anallactic lens and the constant is 100. Compute the length of PQ and reduced level of Q, that of P being 321.50 meters.

P.T.O.

Q3) a) Explain the method of setting out curve by Rankine's method. **[5]**

b) State various obstacles in setting out curves. Explain the procedure of setting out simple curve when point of intersection is inaccessible. **[5]**

c) The chainage of the intersection point of two straights is 1060 m and the angle of intersection is 120°. If radius of a circular curve to be set out is 570 m and peg interval is 30m. Determine the tangent length, the length of the curve, the chainage at the beginning and end of the curve, the length of the long chord, the length of the sub-chords and the total number of chords **[7]**

OR

Q4) a) Draw compound curve with its all components. **[5]**

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

c) A circular curve of 250 m radius is to be set out between two straights having deflection angle of 45°20' right and chainage of the point of intersection as 2250 m. Calculate the necessary data for setting out the curve by the method of offsets from the chords produced taking the peg interval as 20 m. **[7]**

Q5) a) Explain with neat sketch-setting out of Tunnels. **[6]**

b) State applications of Space-Based Positioning System (SBPS). **[6]**

c) Explain the need of establishing horizontal and vertical controls. **[6]**

OR

Q6) a) Explain the conduction of open traversing surveying work. **[6]**

b) State the names of satellites and write note on GLONASS. **[6]**

c) Write note on checking verticality of tall building. **[6]**

Q7) a) Differentiate between Terrestrial photogrammetry and Aerial photogrammetry. **[5]**

b) What do you mean by triangulation and trilateration in geodetic survey? **[6]**

c) State the classification and application of photogrammetry in surveying. **[6]**

OR

Q8) a) What are objectives of hydrographic survey? **[5]**

b) What are different methods of sounding. State any one method in detail. **[6]**

c) State the working principle and applications of total station. **[6]**

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