(3)

MAY 2016

Total No. of Questions—**12**] [Total No. of Printed Pages—**4**

Seat No.	

[4957]-108

S.E. Civil (Semester–II) EXAMINATION, 2016

SURVEYING

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answer any *three* questions from each section.

(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) Figures to right indicate full marks.

(*iv*) Use of logarithmic tables, slide rule, Mollier, charts electronic pocket calculator and steam tables is allowed.

(*v*) Assume suitable data, if necessary.

SECTION-I

1. (*a*) Define bearing and state the types of bearings. Explain with neat sketches magnetic declination and dip. [6]

(*b*) Explain radiation and intersection methods of plane table surveying. What are the advanrtages of plane table surveying ? [8]

(*c*) Find the magnetic declination at a place if the magnetic bearing of the sun at noon is : [4]

(*i*) 184º

(*ii*) 350º 20'

P.T.O.

Or

2. (*a*) What are the equipments required for plane table surveying and their uses in detail? [6]

(*b*) What are the methods of orientation and explain orientation by back sighting with neat sketch. Draw the sketch of prismatic compass and explain its uses ? [8]

(*c*) The magnetic bearing of a line AB is S28º30' E. Calculate the true bearing if the declination is 7º 30' West. [4]

3. (*a*) Explain contour, contour interval and characteristic of contours. [8]

(*b*) Describe the two peg test method of permanent adjustment of a dumpy level. [8]

Or

4. (*a*) Explain profile levelling and crossection levelling in detail with suitable examples. [10]

(*b*) Find the correction for curvature and for refraction for a distance of : [6]

(*i*) 1300 meters

(*ii*) 2.4 km.

5. (*a*) How will you use 20" vernier transit theodolite for measurement of horizontal angles by repetition method with rough sketches. [8]

(*b*) The table given below gives the lengths and bearing of lines of a traverse ABCDE, the length and bearing of EA having been omitted. Calculate the length and bearing of the line. [8]

Line	Length (m)	Bearing
AB	204	87°30'
BC	226	20°20'
CD	187	280°0'
DE	192	210°30'
EA	?	?

Or

6. (*a*) How will you use 20" vernier transit theodolite for measuring magnetic bearing, vertical angle and prolonging a line. [8]

(*b*) Explain about Gales Traverse Table with suitable examples. [8]

SECTION-II

7. (*a*) State fundamental lines of transit theodolite and explain their desired relation ? [10]

(*b*) Two distances of 20 and 100 meters were accurately measured out and the staff intercept between the outer stadia were 0.196m at the former distance and 0.99m at the latter. Calculate the tacheometric contants. [8]

Or

8. (*a*) Explain method for finding tacheometric constant, where both the constants are determined by field observation with suitable examples. [8]

(*b*) State permanent adjustments of a transit theodolite and explain adjustment of plate level and horizontal axis. [10]

9. (*a*) Explain briefly Rankine's one and two theodolite method for setting out the curve. [8]

(*b*) Determine the offsets to be set out at ½ chain interval along the tangents to locate a 16-chain curve, the length of each chain being 20m. [8]

Or

10. (*a*) State linear methods of setting out curve and Define deflection angle, point of curve, point of tangency, unit chord, subchord, tangent distance and angle of intersection. [8]

(*b*) Calculate the ordinate at 10 metres distances for a circular curve having a long chord of 80 metres and a versed sine of 4 metres. [8]

11. (*a*) Explain the procedure for establishing horizontal and vertical control for setting of a road. [8]

(*b*) Explain about various special functions available in a total station. [8]

Or

12. (*a*) Explain setting out foundation trenches of buildings. [8]

(*b*) Explain horizontal angle, vertical Angle and slope distance measurement with total station. [8]