Seat No.

S.E. (Civil) (Part - II) (Semester - III) Examination, April - 2016
SURVEYING - I (Revised)
Sub. Code : 63339

Day and Date : Saturday, 30 - 04 - 2016　　　　　**Total Marks : 100**
Time : 03.00 p.m. to 06.00 p.m.

Instructions :
1) Answer any THREE questions from EACH section.
2) Figures to the RIGHT indicate FULL marks.
3) Assume suitable data if NECESSARY and state them clearly.
4) Answers shall be supported by adequate sketches.

SECTION - I

Q1) a) Derive expression for curvature, refraction and combined correction for curvature and refraction. **[8]**

　　 b) i) Compare working of Auto level and dumpy level. **[4]**

　　　　 ii) Principle of equating back sight and fore sight. **[4]**

Q2) a) A dumpy level was set up at the centre of two pegs 80m apart. The readings on the staff at two pegs were 3.200m and 3.015m. The instrument was then moved 20m to a point ahead of second peg in line with the two pegs. The respective staff readings were 2.825m and 2.690m. Calculate the staff readings on the two pegs to provide horizontal line of sight.**[8]**

　　 b) Explain various methods for determining constants of Planimeter. **[8]**

Q3) a) What is the principle of plane table survey? State the advantages and disadvantages of plane table survey over other types of survey. **[6]**

　　 b) Explain intersection method of plane table survey with a neat diagram.**[6]**

　　 c) Explain contouring using plane table. **[6]**

Q4) Write short notes on the following :

　　 a) Interpolation of contours. **[4]**

　　 b) Factors affecting sensitivity of bubble tube. **[4]**

　　 c) Strength of fix. **[4]**

　　 d) Explain Simpson rule and Trapezoidal Rule. **[4]**

P.T.O.

SECTION - II

Q5) a) What is the purpose of [6]

   i) Making face left and face right observations

   ii) Observing readings on both the verniers

   iii) Repetition method of horizontal angle measurement

   b) How would you test whether the trunnion axis and line of collimation of a transit theodolite are perpendicular to each other? Describe the procedure for adjustment if they are not. [6]

   c) How will you determine the R.L. of tip of a tower when its base is not accessible. [5]

Q6) a) Calculate the consecutive coordinates, closing error and direction of closing error for the traverse ABCDEA. Also, calculate the corrections to coordinates by Bowditch's rule. [10]

Line	AB	BC	CD	DE	EA
Length in m.	89.31	219.76	151.18	159.10	232.26
Whole circle bearing	45°10'	72°05'	161°52'	228°43'	300°42'

   b) If the bearings of two adjacent lines of a closed traverse are missing, explain the method of determining the missed quantities. Support your explaination with appropriate sketch. [7]

Q7) a) What is hydrographic surveying? List down the purposes for which it is carried out. [6]

   b) Describe the construction and use of Box sextant. [5]

   c) Explain the detailed survey to be carried out for a railway alignment. [6]

Q8) a) From the records available from survey notes, it is observed that the lengths of two lines were not readable. From the available data given below find the lengths of the two sides. **[8]**

Line	PQ	QR	RS	ST	TP
Length in m.	178.60	228.40	?	?	238.80
Reduced Bearing	S52°30'E	N48°45'E	N18°15'W	S78°30'W	S32°30'W

b) Give the functions of the following components of a Transit theodolite.**[8]**

    i)   Shifting head

    ii)   Upper clamp screw

    iii) Vertical circle clamp screw

    iv) Foot screws

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