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RN-8053
B. E. (Sem. III) (Civil) Examination
May / June - 2010
Surveying

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

<p>नीचे दर्शाविएल निशानीवाणी विगतो उत्तरवडी पर अवश्य बजवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination :</p> <p>B. E. (Sem. 3) (Civil)</p> <p>Name of the Subject :</p> <p>Surveying</p> <p>Subject Code No. : 8 0 5 3 Section No. (1, 2,.....): 1&2</p>	<p>Seat No. :</p> <table border="1" style="width: 100%; height: 20px;"><tr><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> <div style="border: 1px solid black; border-radius: 15px; height: 60px; margin-top: 10px; display: flex; align-items: center; justify-content: center; padding: 10px;">Student's Signature</div>						

- (2) Answer the **two** sections on **two separate** answer sheets.
- (3) Assume missing data suitably with appropriate remarks.
- (4) Draw sketches wherever necessary.
- (5) Figures to the right indicate full marks.

SECTION - I

- 1 (a) Two tangents intersect at chainage 1265 metre with angle of intersection as 140° . If the radius of the curve is 300 metre, calculate the necessary data for setting out the curve by the method of offsets from the chord produced. The pegs are to be driven at 20 m interval. 7
- (b) It is required to set out a rectangular building 40 metre by 36 metre with 15 cm thick walls. The width of the foundation is 1 metre. The building is divided into three equal parts. The internal walls are 10 cm thick and foundation width is 75 cm. Draw a detailed plan showing all the pegs required for setting out this building. 5
- (c) Name the fundamental lines of a theodolite and the desired relationship between them. 6

- 2 (a) How is a simple circular curve designated? Develop the relationship $R = \frac{5730}{D}$ for a chord definition of 100 m length. R is the radius of curve. D is the angle subtended at the centre by the chord. 8

OR

- (a) Enlist the various purposes for which a theodolite can be used. Draw sketches to explain how deflection angles can be set, how bearing of line can be found with the help of theodolite. 8
- (b) Draw sketches to explain setting out of culverts. 8
- 3 Answer objectively any **eight** of the following in 1-3 sentences : 16

- (i) Why is three point problem always adopted in preference to the two point problem.
- (ii) Differentiate between mid section method and the trapezoidal method for each work calculation.
- (iii) Give the difference between direct levelling and indirect levelling.
- (iv) Give reasons why bridges can not be set out from the centre?
- (v) Give reasons why setting out of works is sometimes referred to as reverse of surveying.
- (vi) Give advantage of linear method over angular method for curve setting.
- (vii) Why is the method of orientation by magnetic needle in plane tabling said to be inaccurate.
- (viii) Differentiate between midordinate and external distance./
- (ix) Differentiate between long chord and normal chord for circular curve.
- (x) Give the basic difference between transit and non transit theodolite.

SECTION - II

- 4 (a) What are the methods of plane tabling? Describe any of them with a sketch. 5
- (b) What is a two-point problem? Explain with a neat sketch the procedure of solving a two-point problem in plane table surveying? 8

OR

- (b) (i) What is the principle of plane table survey. 8
- (ii) Name the different instruments and accessories used in plane table survey.
- (iii) Explain with a sketch the method of radiation.
- (iv) The basic difference between radiation and intersection.
- (c) An instrument was set up at P and the angle of elevation to a vane 4 m above the foot of the staff held at Q was $9^{\circ} 30'$. The horizontal distance between P and Q was known to be 2000 meters. Determine the R.L. of the staff station Q, given that R.L. of the instrument axis was 2650.38 m. 6
- 5 (a) Define the following : 5
- (i) Trigonometric levelling
- (ii) Indirect levelling.
- (b) Derive the equation to calculate R.L. of Q when instrument axis A and B are at very different level.

OR

- (b) Discuss the procedure of indirect levelling on a rough terrain. 7
- (c) What is sounding? State the various sounding equipment. 4
- 6 Write any **three** short notes : 15
- (i) Purpose of hydrographic survey
- (ii) Fathometer
- (iii) Weight lines
- (iv) Advantages and disadvantages of plane table survey.