

TCE-303

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Paper Code & Roll No. to be filled in your Answer Book

Roll No.

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Odd Semester Examination-2016

B.Tech (Semester - III)**BASIC SURVEYING**

[Time : 2 Hours]

[Maximum Marks : 50]

Note : Attempt all questions.1. Attempt **any five** parts of the following : [2x5=10]

- (a) Differentiate between plane surveying and geodetic surveying.
- (b) What is levelling?
- (c) What is plane table survey and list the equipment used for it?
- (d) What is the importance of surveying to civil engineers?
- (e) What is horizontal equivalent in contouring?

- (f) The value of the smallest division of a circle of a repeating theodolite is $10'$. Design a suitable vernier to read up to $10''$.

2. Attempt **any two** parts of the following: [5x2=10]

- (a) What are the principles and objectives involved in surveying?
- (b) Determine the length of line EA and its bearing.

Line	Length (m)	Bearing
AB	195.2	$84^{\circ}30'$
BC	200.1	$16^{\circ}0'$
CD	170.4	$295^{\circ}30'$
DE	167.6	$185^{\circ}30'$
EA	?	?

- (c) Convert the following whole circle bearings into quadrantal bearings.

- (i) 20°
- (ii) 150°
- (iii) 210°
- (iv) 320°

Also, find out the back bearings of the four lines AB, CD, EF and GH whose fore bearings are, respectively, as under

(i) $15^{\circ}30'$

(ii) $115^{\circ}45'$

(iii) $250^{\circ}30'$

(iv) 340°

3. Attempt **any two** parts of the following : [5x2=10]

(a) Write a short note on the effect of curvature of earth and refraction. A level was set up at a point C at a distance of 100 m from A & 1000 m from B. The staff's reading on the staff kept at A was 0.445 m & that on the staff held at B was 2.845. Find the true difference in elevations of A & B?

(b) What are temporary adjustments of theodolite?

(c) What is the principle of leveling? Also explain the different methods of leveling.

4. Attempt **any two** parts of the following. [5x2=10]

(a) Explain reiteration method for horizontal angle measurement.

- (b) What is interpolation of contours? Also explain the characteristics of contours.
- (c) Determine the offsets to be set out at $\frac{1}{2}$ chain interval along the tangents to locate a 16-chain curve, the length of each chain being 20m.
5. Attempt **any two** parts of the following : [5x2=10]
- (a) What is a transition curve? Also derive the mathematical relation for super elevation.
- (b) What are the elements of a simple circular curve?
- (c) Explain in detail the concept of three-point problem.

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