Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (2011 Onwards) (Sem.–3)

SURVEYING

Subject Code : BTCE-304

Paper ID : [A1116]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a) What do you understand by tachometry?

b) What is the basic principle of tachometry?

c) What do you understand by trigonometric leveling?

d) Explain the term Terrestrial refraction.

e) Give two applications of boning rod.

f) Discuss advantages of indirect methods of contouring.

g) What is reciprocal leveling? Where one can use this leveling?

h) Write formula for Bowditch Rules.

i) What is the principle of plane table surveying?

j) What is the term transiting in Theodolite?

SECTION-B

2. The length of a line measured with a 30m long tape was 368.64m. The tape was standardized at a temperature of 20°C. If the temperature during measurements was 42° C, find the correct length of the line. The coefficient of thermal expansion of the tape material is $12\times10^{-6}/^{\circ}C$.

3. The F.B and B.B. of a line AB were observed to be 245°30' and 65°45'. It is known that station A is free of local attraction. The declination at the place was found to be 3°15' W. Find the true bearing of line BA.

4. Explain 3 Point problem. Discuss its tracing paper method.

5. The following readings were taken in sequence during a leveling work :

   1.585, 1.315, 2.305, 1.225, 1.325, 1.065, 1.815 and 2.325. The level was shifted after the 3rd and 6th readings. The 2nd change point was a bench mark of elevation 186.975. Find the RLs of the remaining stations. Use the Rise and Fall method.

6. From the traverse data given below, find the data required for plotting by

   a) Barings

   b) included angles

   c) Deflection angles

   d) tangent length

   e) coordinates

Line	**AB**	**BC**	**CD**	**DA**
Length	86.8	100.2	93.6	22.54
Bearing	320°30'	64°45'	201°15'	183°50'

SECTION-C

7. Explain briefly the method of setting out a curve with :

   a) one theodoIite

   b) 2 theodolites.

8. What is an anallactic lens? In which telescope is it used? What is the condition under which the additive constant is zero with an anallactic lens? Also, calculate the stadia interval when, the readings on a staff held vertically 60 m from a tachometer were 1.460 and 2.055. The line of sight was horizontal. The focal length of the objective lens was 24 cm and the distance from the objective lens to the vertical axis was 15 cm.

9. Explain the concepts of strength of figure and the method used to calculate it.