

4E4114

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B.Tech. IV semester (Main & Back) Examination, May - 2018  
Civil Engineering  
4CE4A Surveying - I

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 26

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**Instructions to Candidates:**

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

**Unit - I**

1. Discuss in brief the principles of surveying. Differentiate clearly between plane & geodetic surveying. Also highlight the uses of surveying. (16)

**OR**

1. a) Explain the method of testing & adjusting a chain. (6)  
b) The distance between two stations, measured with a 20 m chain, was found to be 995 m. The same distance was found to be 996 m, when a 30 m chain was used. If the 20 m chain was 0.10 m short, what was the error in the 30 m chain? (10)

**Unit - II**

2. The following fore bearings & back bearings were observed in traversing with a compass.

| Line | Fore bearing | Backbearing |
|------|--------------|-------------|
| PQ   | S37°30'E     | N37°30'W    |
| QR   | S43°15'W     | N44°15'E    |
| RS   | N73°00'W     | S72°15'E    |
| ST   | N12°45'E     | S13°15'W    |
| TP   | N60°00'E     | S59°00'W    |

- Calculate the interior angles and correct them for observational errors. (16)

**OR**

2. a) Describe the process of permanent adjustment of a transit theodolite. (8)  
b) Draw a neat sketch of transit theodolite show the various parts and describe their function briefly. (8)

**Unit - III**

3. Write detail note on different methods of traversing. (16)

**OR**

3. Write Detail note on methods of computations and adjustment of traverse. (16)

**Unit - IV**

4. Write short note on :

- a) Diaphragm.  
b) Benchmark  
c) Focussing  
d) Principle of levelling.

(4×4=16)

**OR**

4. a) A light house is visible just above the horizon at a certain station at the sea level. The distance between the station & the light - house is 50 km. Find the height of the light house. (10)  
b) Describe the various components of a plane table used for survey purposes. What are their functions? (6)

**Unit - V**

5. a) Define the term 'contourline', 'contour interval' and 'horizontal equivalent'. (8)  
b) What are the characteristics of contour lines? (8)

**OR**

5. a) What is a contour gradient? Describe the methods for plotting contour gradient on plan. (8)  
b) Describe the methods of interpolation of contours. (8)
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