

CBCS SCHEME

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15MN45

Fourth Semester B.E. Degree Examination, June/July 2018 Mine Surveying – I

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Distinguish between Plane Surveying and Geodetic Surveying. (04 Marks)
- b. What are the advantages and disadvantages of plane table survey? (04 Marks)
- c. Define EDM. What are the types of EDM instruments? Explain with neat sketch about the visible light instrument. (08 Marks)

OR

- 2 a. The following bearings were observed with a compass. Calculate the interior angles. (08 Marks)
[Refer Fig.Q2(a)]

Line	Fore Bearing
AB	60° 30'
BC	122° 0'
CD	46° 0'
DE	205° 30'
EA	300° 0'

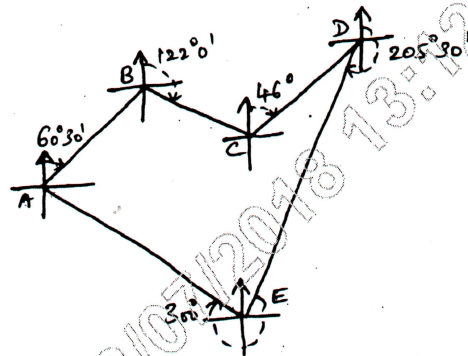


Fig.Q2(a)

- b. Distinguish between Prismatic compass and Surveyor's compass. (08 Marks)

Module-2

- 3 a. Write a detailed note on temporary adjustments of a level. (08 Marks)
- b. Define and with sketch, derive the expression of sensitiveness of Bubble tube. (08 Marks)

OR

- 4 a. The following consecutive readings were taken with a level and 5 m leveling staff on continuously sloping ground at a common interval of 20 m.
0.385, 1.030, 1.925, 2.825, 3.730, 4.685, 0.625, 2.005, 3.110, 4.485.
The reduced level of the first point was 208.125 m. Rule out a page of a level field book and enter the above readings. Calculate the reduced levels of the points by Rise and fall method and also the gradient of the line joining the first and the last point. (08 Marks)
- b. With a neat sketch, explain how will you transfer the level from surface to underground. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-3

- 5 a. With a neat sketch, explain the extension of Base net. (08 Marks)
 b. A nominal distance of 30m was set out with a 30m steel tape from a mark on the top of one peg to a mark on the top of another, the tape being in Catenary under a pull of 100N and at a mean temperature of 70°F. The top of one peg was 0.25m below the top of the other. The top of the higher peg was 460 m above mean sea level. Calculate the exact horizontal distance between the marks on the two pegs and reduced it to mean sea level, if the tape was standardized at a temperature of 60°F in Catenary under a pull of (i) 80N (ii) 120N and (iii) 100N.

Take radius of earth = 6370 km

Density of tape = 7.86 g/cm³

Section of tape = 0.08 Sq.cm

Coefficient of expansion = 6×10^{-6} per 1°F

Young's modulus = 2×10^7 N/cm²

(08 Marks)

OR

- 6 a. With neat sketches, explain about the characteristics of contours. (08 Marks)
 b. Explain the uses of Contour maps. (08 Marks)

Module-4

- 7 a. With sketches, explain about the methods of area computed from map measurements. (08 Marks)
 b. With neat sketch, explain about the planimeter. (08 Marks)

OR

- 8 a. A railway embankment is 10m wide with side slopes 1½ to 1. Assuming the ground to be level in a direction transverse to the centre line. Calculate the volume contained in a length of 120m, the centre heights at 20m intervals being in meters 2.2, 3.7, 3.8, 4.0, 3.8, 2.8, 2.5. (08 Marks)
 b. With neat sketches, explain the methods adopted by volume from Contour plan. (08 Marks)

Module-5

- 9 a. With neat sketch, explain about the general procedure for measurement of horizontal angles using theodolite. (08 Marks)
 b. What are the different sources of errors in theodolite? Explain about the instrumental error. (08 Marks)

OR

- 10 a. Write a detailed note on closing error with neat sketch. (08 Marks)
 b. Write a note on balancing the traverse by Bowditch's method. (08 Marks)

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