CBCS SCHEME

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18CV35

Third Semester B.E./B.Tech. Degree Examination, June/July 2025
Basic Surveying

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Discuss in detail with sketches the principles and surveying. **(10 Marks)**

b. Explain classification of surveying in detail. **(10 Marks)**

OR

2 a. Explain in detail about chaining on uneven or sloping ground. **(10 Marks)**

b. Explain in detail about obstacles in chaining but not ranging. **(10 Marks)**

Module-2

3 a. What is field book? List the points to be kept in mind while entering in field book. **(08 Marks)**

b. The following bearings were observed while traversing with a compass :

Line	FB	BB
AB	45° 45′	226° 10′
BC	96° 55′	277° 05′
CD	29° 45′	209° 10′
DE	324° 48′	144° 48′

Mention which stations were affected by local attractions and determine the corrected bearing. **(12 Marks)**

OR

4 a. Differentiate between :

i) True meridian and magnetic meridian

ii) WCB and QB

iii) Fore bearing and Back bearing. **(06 Marks)**

b. Distinguish between prismatic compass and Surveyour's compass. **(04 Marks)**

c. It is not possible to measure the length and fix the direction of a line AB directly, on account of an obstruction between the stations A and B. A traverse ACDB was run and following data were obtained.

Line	Length (m)	Reduced bearing
AC	45	N50°E
CD	66	S70°E
DB	60	S30°E

Find the length and direction of BA. **(10 Marks)**

Module-3

5 a. Describe with sketches the collimation method of reducing levels and compare the collimation method with rise and fall method. **(10 Marks)**

b. The following staff readings were observed successively with a level, the instrument having been moved after 3rd, 6th and 8th readings. Enter readings and calculate RL of points by H.I method. If first reading was taken with a staff held on :
BM = 432.384 m, 2.228 m 1.606 m, 0.988 m, 2.090 m,
2.864 m, 1.262 m, 0.602 m, 1.982m, 1.044 m and 2.684 m. **(10 Marks)**

OR

6 a. Explain in detail about differential levelling. **(05 Marks)**

b. Explain the terms :
i) Station
ii) Height of instrument
iii) Back sight
iv) Fore sight
v) Turning point. **(05 Marks)**

c. The following consecutive readings were taken with a level and 5m levelling staff on continuously sloping ground at common interval of 20 mts.
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. Calculate the reduced levels of the points by rise and fall method also the gradient of the line joining the first and last point. **(10 Marks)**

Module-4

7 a. What are the advantages and disadvantages of plane table surveying? **(06 Marks)**

b. Describe briefly radiation method and intersection method of plane tabling. **(10 Marks)**

c. Write short notes on orientation of plane table. **(04 Marks)**

OR

8 a. State the 3-point problem and explain how it is solved by the graphical method. **(10 Marks)**

b. Explain in detail about the instruments used in plane table. **(10 Marks)**

Module-5

9 a. State and prove the trapezoidal and Simpson's rule for determining the area. **(10 Marks)**

b. A series offset were taken from a chain line to a curved boundary line at intervals of 15 mts in the following order 0, 2.65 m, 3.80 m, 3.70 m, 4.65 m, 3.60 m 4.95 m, 5.85 m. Compute the area between the chain line, the curved boundary and the end offsets by :
i) Average ordinate rule
ii) Trapezoidal rule
iii) Simpson's rule. **(10 Marks)**

OR

10 a. What is a Contour? What are the uses of contour map? **(06 Marks)**

b. Explain the interpolation of contours. List the methods of contouring. **(06 Marks)**

c. A railway embankment is 10 m wide with a side slopes of 1 : 1.5 (V : H). Assuming the ground to be level in a direction transverse to the centerline, calculate the volume contained in a length of 120 m, the centre heights at 20 m intervals being in 'm' 2.2, 3.7, 3.8, 4.0, 3.8, 2.8 and 2.5. Compute the volume by trapezoidal and prismoidal rule. **(08 Marks)**

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