

CBCS SCHEME

17MN45



Fourth Semester B.E. Degree Examination, June/July 2019 Mine Surveying - I

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- Define Surveying and explain its objectives. What are the purpose of survey? (08 Marks)
 - Explain the two basic principles of surveying. (04 Marks)
 - Differentiate between Geodetic survey and Plane survey. (08 Marks)

OR

- The following bearings were observed with a compass. Calculate the interior angles. (10 Marks)

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

- The following bearings were observed while traversing with a compass.

Line	AB	BC	CD	DE
F.B	45° 45'	96° 55'	29° 45'	324° 48'
B.B	226° 10'	277° 5'	209° 10'	144° 48'

Mention which station were affected by local attraction and determine the corrected bearings. (10 Marks)

Module-2

- Define the following terms : Leveling intermediate sight ; Bench mark ; Change point. (04 Marks)
 - Following consecutive readings were taken on a continuously sloping ground at 30m interval with a dumpy level and 4m levelling staff. 0.585 on A, 0.936, 1.953, 2.846, 3.644, 3.938, 0.962, 1.035, 1.089, 2.534, 3.844, 0.956, 1.579, 3.016 on B. The elevation of A was 520.450m. i) Prepare a page of level book ii) Calculate the R.L. of all points by rise and fall method iii) Apply usual checks iv) Determine the gradient of line AB. (16 Marks)

OR

- Define the following terms : Elevation ; Station ; Line of collimation ; Mean Sea level. (04 Marks)
 - Calculate the correction of curvature , correction for refraction and combined correction for a distance of 10km. (06 Marks)
 - Find the height of the tie beam above the floor level with the following data : (10 Marks)

RL of the floor	- 42.00
Staff reading of the floor	- 1.50
Reading on the staff held interved with bottom touching the underside of the tie beam	- 3.20

Module-3

- Draw sketches of contours showing the following features : Hill ; Hollow ; Steep slope ; Gentle slope ; Uniform slope ; Plane area ; Ridge ; Valley ; Saddle. (09 Marks)
 - Differentiate between the : Contour interval and horizontal equivalent. (05 Marks)
 - Give reason for the following : i) If the scale is large , the contour interval should be small. ii) All the contours must form closed loops. (06 Marks)

OR

- 6 Write short notes on :
- Well – conditioned Triangles. (05 Marks)
 - Base line. (05 Marks)
 - Reconnaissance (05 Marks)
 - Principle of Triangulation. (05 Marks)

Module-4

- 7 a. What are the three types of methods for the computation of areas? (06 Marks)
 b. Following table gives the perpendicular offsets taken from the center line of a road to a hedge :

Offset No.	O ₀	O ₁	O ₂	O ₃	O ₄	O ₅	O ₆	O ₇	O ₈
Offset in M	4	6	5	7	5	4	3	4	6
Distance in M	0	15	30	45	60	80	100	110	120

Compute the area between the center line of road and hedge by applying

- i) Trapezoidal rule and ii) Simpson rule. (14 Marks)

OR

- 8 a. Calculate the volumes of the earthwork in cutting and embankment for a road in plain with the following particulars. (14 Marks)

Distance in M	G.L	R.L of formation
0	100.00	97.00
30	99.30	96.80
60	98.45	96.60
90	97.53	96.40
120	97.35	96.20
140	96.07	96.07
150	95.38	96.00
180	95.13	96.30
210	94.86	96.60
240	94.22	96.90

- b. Enumerate the methods for computation of volumes. (06 Marks)

Module-5

- 9 a. What are the temporary adjustments of a theodolite? (08 Marks)
 b. Describe the repetition method of measuring horizontal angle of theodolite. (12 Marks)

OR

- 10 a. Describe 'Fast needle method' of theodolite traversing. (10 Marks)
 b. The table below gives the lengths and bearings of the lines of a traverse ABCDE, the length and bearing of EA having been omitted. Calculate the lengths and bearing of the line EA. (10 Marks)

Line	Length (M)	Bearing
AB	204.0	87° 30'
BC	226.0	20° 20'
CD	187.0	280° 0'
DE	192.0	210° 3'
EA	?	?
