Librarian
Learning Resource Centre
Acharya Institute & Technology

CBCS SCHEME

USN | | | | | | | | | | |

17MN45

Fourth Semester B.E. Degree Examination, Feb./Mar. 2022
Mine Surveying – I

Time: 3 hrs. Max. Marks: 100

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

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-1

1 a. Define surveying and explain its object. **(08 Marks)**

b. Find the total correction per tape length with the following parcilulars :

Length of tape	= 30m
Weight of tape	= 1.2kg
Temperature at which tape is standardized	= 14°C
Pull at which tape is standardized	= 10kg
Field temperature	= 32°C
Pull applied in field	= 15kg
Density of steel	= 7.86g/cm^3
Modulus of elasticity of tape	= 2.1 × 10^6 kg/cm^2
Coefficient of thermal expansion	= 0.0000035 per °C.

(12 Marks)

OR

2 a. Explain the two basic principles of surveying. **(10 Marks)**

b. The observed W.C.B of a line XY is 57°. Lines XA, XB, XC and XD are drawn from point X, If ∠ YXA = 50°, ∠AXB = 32°, ∠BXC = 62°, ∠CXD = 85°, calculate the bearings of lines XA, XB, XC and XD. **(10 Marks)**

Module-2

3 a. Differentiate between the following :

i) Backsight and foresight
ii) Line of collimation and height of instrument
iii) Parallax and focusing
iv) Dumpy level and tilting level. **(12 Marks)**

b. Calculate the correction for curvature, correction for refraction and combined correction for a distance of 10km. **(08 Marks)**

OR

4 Following consecutive readings were taken on a continuously sloping ground lien at a regular distance of 30m by using 4m leveling staff. 0.605, 1.230, 1.865, 2.675, 0.135, 0.825, 1.635, 2.875, 0.670, 1.735, 2.725, R.L of point A is 100m

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. **(20 Marks)**

Module-3

5 a. Explain in detail, the steps involved in triangulation survey. **(12 Marks)**

b. Mention the various corrections made during base line measurements. **(08 Marks)**

OR

6 a. Describe the characteristics of contours. **(10 Marks)**

b. Enumerate the uses of contours. **(10 Marks)**

Module-4

7 a. Explain the three types of methods for the computation of areas. **(10 Marks)**

b. Following perpendicular offsets were taken from a chain line to a curved boundary line at intervals of 10m.
0, 7.83, 5.26, 6.45, 7.33, 7.87, 8.23, 0.
Compute the area between the chain line, the curved boundary line and the end offsets by applying average ordinate rule ; trapezoidal rule and Simpson rule. **(10 Marks)**

OR

8 a. Enumerate the methods for computation of volumes. **(10 Marks)**

b. The centre – line of a road embankment subtends an angle of 45° at the centre of a curve. The radius of the curve is 900m. The side slopes and height at the centre are respectively 2 : 1 and 3m. The slope of the ground in the transverse direction is 1 in 8. If the formation width of the road is 10m, work out the volume of earth work. **(10 Marks)**

Module-5

9 a. What are the temporary adjustments of a theodolite? Explain. **(12 Marks)**

b. Describe the general procedure for measuring horizontal angle by theodolite. **(08 Marks)**

OR

10 a. The co-ordinates of two points 'P' and 'Q' are as follows :
Point P(125.20 N; 102.80E)
Point Q(237.60 N; 165.90E)
Calculate the length and bearing of line PQ. **(10 Marks)**

b. Describe the reiteration method of measuring horizontal angle by theodolite. **(10 Marks)**

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