CBCS SCHEME

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17MN45

Fourth Semester B.E. Degree Examination, June/July 2023
Mine Surveying – I

Time: 3 hrs. Max. Marks: 100

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

Module-1

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

b. Differentiate between Geodetic survey and plane survey. **(10 Marks)**

OR

2 a. A 20 m chain was found to be 10 cm too long after chaining a distance of 1800 m. It was found to be 20 cm too long at the end of day's work after chaining a total distance of 1800 m. It was found to be 20 cm too long at the end of days work after chaining a total distance of 2800 m. Find the true distance if the chain was 10 cm too short before commencement of the work. **(10 Marks)**

b. Calculate the included angles A, B and C of a triangle from the following data :

Side	F.B	B.B
AB	45°	225°
BC	130°	310°
CA	270°	90°

(10 Marks)

Module-2

3 a. What are the factors affecting the sensitiveness of bubble tube? How can it be determined? **(12 Marks)**

b. Find the height of the tie beam above the floor level with the following data :
- R.L of floor – 42.00
- Staff reading on floor – 1.50
- Reading on the staff held inverted with bottom touching the underside of tie beam – 3.20. **(08 Marks)**

OR

4 Following consecutive readings were taken on a continuously sloping ground at 30 m interval with a dumpy level and 4 m leveling 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 520.450 m.

a. Prepare a page of level book. **(06 Marks)**

b. Calculate the R.L of all points by rise and fall method and also apply usual checks. **(10 Marks)**

c. Determine the gradient of line AB. **(04 Marks)**

Module-3

5 a. Describe the characteristics of contours. **(12 Marks)**

b. Enumerate the uses of contours. **(08 Marks)**

OR

6 a. Explain in detail, the various steps involved in triangular survey. **(12 Marks)**

b. Explain with necessary equations, the various corrections applied while measuring base line. **(08 Marks)**

Module-4

7 Following perpendicular offsets were taken from a chain line to a curved boundary line at intervals of 10 m:

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,

(i) Average ordinate rule **(06 Marks)**

(ii) Trapezoidal rule **(06 Marks)**

(iii) Simpson's rule. **(08 Marks)**

OR

8 a. What are the three factors on which the accuracy of the final result of computation of volumes will depend? **(06 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 900 m. The side slopes and height at the centre are respectively 2 : 1 and 3 m. The slope of the ground is the transverse direction is 1 in 8. If the formation width of the road is 10 m, work out the volume of earth work. **(14 Marks)**

Module-5

9 a. What are the temporary adjustments of a theodolite? **(10 Marks)**

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

OR

10 a. The co-ordinates of two points P and Q are as follows:

Point P(125.20 N ; 102.80 E)

Point Q(237.60 N ; 165.90 E)

Calculate the length and bearing of line PQ. **(10 Marks)**

b. An open traverse POQRST was run with bearing of line PO as 82° 30′. If $\angle POQ = 121°35'$ $\angle OQR = 96°45'$, $\angle QRS = 135°10'$ and $\angle RST = 110°35'$, calculate the deflection angles at stations O, Q, R and S and bearing of line OQ, QR, RS and ST. **(10 Marks)**

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