

CBCS SCHEME



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17MN45

Fourth Semester B.E. Degree Examination, July/August 2021 Mine Surveying – I

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Define Surveying. Enlist the difference between plane and Geodetic surveying. (05 Marks)
b. Explain the various classifications of surveying with a suitable example. Write a short notes on EDM's. (08 Marks)
c. List some four major differences between prismatic compass and surveyor compass. Explain the method of Q.B and W.C.B systems. (07 Marks)
- 2 a. Explain the different types of chains and tapes with their uses. (10 Marks)
b. Compute the interior angles from the data:

Line	F.B
AB	60°30'
BC	122°0'
CD	46°0'
DE	205°30'
EA	300°0'

(10 Marks)

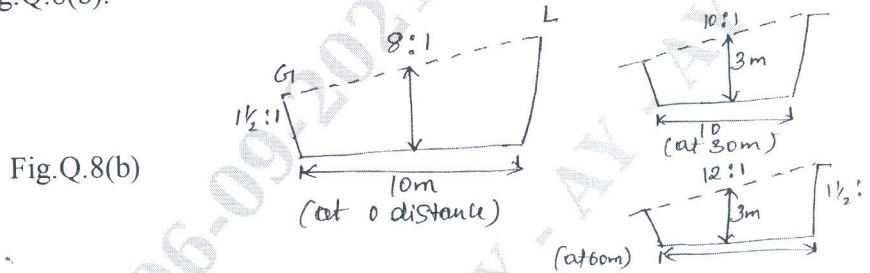
- 3 a. Explain the principles and basic definitions of leveling and types of levels. (08 Marks)
b. Explain the procedure for (Rise and fall) and (Height of the instrument method) briefly. (12 Marks)

- 4 a. With a neat sketch, explain the fundamental axis and parts of dumpy level. (08 Marks)
b. Explain the method of transfer of levels from surface to underground through an incline shaft. (06 Marks)
c. Following consecutive staff readings were taken with a level along a sloping ground line AB at a regular distance of 20m by using 4m leveling staff: 0.352, 0.787, 1.832, 2.956, 3.758, 0.953, 1.756, 2.738, 3.872, 0.812, 2.325 and 3.127. Rule out a page of level of field book and enter the above readings R.L of point A is 320.288 calculate R.L. of all points by rise and fall system and work out the gradient of line AB. (06 Marks)

- 5 a. Define Triangulation. Explain the various classification of triangulation survey. (10 Marks)
b. Explain the indirect method of locating contours. (10 Marks)

- 6 a. A steel tape 20m long standardized at 55°F with a pull of 10kg was used for measuring a base line. Find the correction per tape length if the temperature at the time of measurement was 80°F and the pull exerted was 16kg weight of 1 cubic cm of steel = 7.86g, wt of tape = 0.8kg and $E = 2.109 \times 10^6 \text{ kg/cm}^2$. Coefficient of expansion of tape per $1^\circ\text{F} = 6.2 \times 10^{-6}$. (10 Marks)
b. With a sketch, explain the various characteristics of contours. (10 Marks)

- 7 a. Explain the method of determining area by offsets at equal intervals. (10 Marks)
 b. Following perpendicular offsets were taken from a chain line to a curved boundary line at intervals of 10m, 0, 0.783, 5.26, 6.45, 7.33, 7.87, 8.23, 0 compute the area between the chain line to a curved boundary line and the end offsets by
 i) Average ordinate rule ii) Trapezoidal rule iii) Simpson's rule. (10 Marks)
- 8 a. Explain the method of determining volume by i) Spot level method ii) Contour. (10 Marks)
 b. Calculate the volume of earth work by the use of prismoidal formula for a proposed road of formation width 10m. The length of road is 60m and cross-section of the road at distance 0, 30 and 60m as shown in Fig.Q.8(b). The ground is sloping in transverse direction as shown in Fig.Q.8(b). (10 Marks)



- 9 a. Explain the method of finding horizontal angles using a transit theodolite. (10 Marks)
 b. Correct the following bearings taken in a compass survey for a closed traverse. ABCDE for observation of errors. (10 Marks)

Line	FB	B. B
AB	83°	260°
BC	141°	320°
CD	170°	350°
DE	240°	58°
EA	328°	153°

- 10 Following are the coordinates lines AB, BC, CD and DA in a theodolite traversing, Adjust the traverse by applying the transit rule and also calculate the independent coordinates if the coordinate of station A are (200, 350). (20 Marks)

Line	Lat	Dep
AB	123.35	35.68
BC	93.82	205.68
CD	-177.44	70.11
DA	-39.21	-312.25

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