CBCS SCHEME

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18MN33

Third Semester B.E. Degree Examination, Aug./Sept.2020
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. Define Surveying. What are the purposes of survey? **(10 Marks)**

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

OR

2 a. Give the equations for tape corrections to be applied to the measured lengths. **(10 Marks)**

b. A steel tape 20m long standardized at 55^0F 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 ^{0}F and the pull exerted was 16kg. Weight of 1 cubic cm of steel = 7.86g , Weight of tape = 0.8kg and E = 2.109×10^6 kg/cm^2. Coefficient of expansion of tape per 1 ^{0}F = 6.2×10^{-6}. **(10 Marks)**

Module-2

3 a. Convert the following R.B to W.C.B :

i) N 12^0 28′ E ii) N 68^0 27′ W iii) S 43^0 38′ E iv) S 37^0 52′ W. **(04 Marks)**

b. If the declination and the local attraction at one survey station is found 5^0E and $+5^0$ respectively, find the true bearing of the line whose magnetic bearing is 65^0 at this survey station. **(04 Marks)**

c. Following are the bearing observed at the stations A, B, C, D and E of a closed traverse ABCDE carried out with the help of a prismatic compass.

Station	Observed Bearing	
	FB	BB
A	80^0	140^0
B	90^0	260^0
C	120^0	269^0
D	200^0	301^0
E	318^0	18^0

Correct the observed bearings for the local attraction and calculate the included angles. **(12 Marks)**

OR

4 a. What are the temporary adjustments of a theodolite? **(04 Marks)**

b. Describe the repetition method of measuring horizontal angle by theodolite. **(04 Marks)**

c. Following are the latitudes and departures of lines AB, BC, CD and DA in a theodolite traverse :

Line	Latitude	Departure
AB	123.35	35.68
BC	93.82	205.86
CD	-177.44	70.11
DA	-39.21	-312.25

Adjust the traverse by applying the Transit rule **(12 Marks)**

Module-3

5 a. Define the following terms : Levelling ; Bench mark ; Change point ; Line of collimation and Station. **(05 Marks)**

b. Following consecutive readings were taken on points 1 to 7 along a line : 0.785 , 1.326 , 2.538 , 3.435 , 1.367 , 2.328 , 1.234 and 1.657.
The instrument was shifted after the fourth reading and the first reading was taken on a B.M with R.L = 100.00. Rule out a page of level book and work out the R.L of all points by applying rise and fall system. **(15 Marks)**

OR

6 a. Calculate the correction for curvature, correction for refraction and combined correction for a distance of 10km. **(05 Marks)**

b. Following is a page of a level book (Refer table). Fill in the missing data and calculate the RL of all the points. Apply the checks.

Station	Chainage	B.S	I.S	F.S	Rise	Fall	H.L	R.L
1	0	2.485	-	-	-	-	?	?
2	20	-	?	-	1.035	-	-	?
3	40	-	0.625	-	?	-	-	?
4	60	2.450	-	?	-	3.175	?	?
5	80	-	2.155	-	?	-	-	?
6	100	-	1.945	-	?	-	-	?
7	120	1.255	-	0.645	?	-	?	?
8	140	-	-	2.450	-	?	-	100.00(BM)
Check		ΣB.S = ?		ΣF.S = ?	ΣRise = ?	ΣFall = ?		

(15 Marks)

Module-4

7 a. What is Contour Interval? What are the factors to be considered while selecting the contour interval? **(05 Marks)**

b. Describe the characteristics of contours. **(15 Marks)**

OR

8 a. What is the plane table survey? Enumerate the cases in which the plane table survey is found to be useful. **(04 Marks)**

b. Describe the accessories required for the plane table survey. **(08 Marks)**

c. Describe about the temporary adjustments of the plane table. **(08 Marks)**

Module-5

9 a. What are three types of methods for the computation of areas? **(06 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
i) Average ordinate rule ii) Trapezoidal rule and iii) Simpson rule. **(14 Marks)**

OR

10 a. Draw neat sketches of various cross - sections. **(10 Marks)**

b. Calculate the earth work of a road in embankment having formation width of 10m and length of 100m. The side slopes and height at centre are respectively 2:1 and 3m. The slope of the ground in the traverse direction is 1 in 10. **(10 Marks)**

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