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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE – NOVEMBER -2020.

SURVEYING-I

(Maximum Marks: 75) [Time: 2.15 hours]

PART–A

Marks

I. Answer **any three** questions in one or two sentences. Each question carries 2 marks.

1. What is a well conditioned triangle?
2. List the steps involved in setting up of a plane table?
3. Define the term magnetic dip.
4. What are the factors affecting sensitivity of bubble tube?
5. What is an overhanging cliff in contouring? (3x2=6)

PART - B

II Answer **any four** of the following questions. Each question carries 6 marks.

1. (a) There is a statue 'T' located on the bank of a river. A point 'C' is selected opposite to the statue, CB is set out right angles on the line CT at C. Line BC is produced to A and the angles CBT and CAT measured were 30^0 and 45^0. If the length of the line AB=150 m. Find the width of river.
2. Describe the traversing in plane table surveying.
3. Explain different types of variations of Declination.
4. The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eighth readings: 2.228 ; 1.606 ; 0.988 ; 2.090 ; 2.864 ; 1.262 ; 0.602 ; 1.982 ; 1.044 ; 2.684 meters. Calculate the R.L of points if the first reading was taken with a staff held on a benchmark of 300.86m.

5. What are the uses of contouring?

6. Write short note on the instruments used in plane table surveying.

7. Convert the following bearings.

   (a) N $5^0$42' W (b) $94^0$24' (c) S $30^0$50' W

[4x6 =24]

PART - C

(Answer **any of the three units** from the following. Each full question carries 15 marks)

UNIT I

III (a) How is the radiation method differs from intersection method? (9)

(b) Write a brief description about the errors in chaining. (6)

OR

IV (a) Explain the term reciprocal ranging with the help of neat sketch. (9)

(b) What are the obstacles in chaining. (6)

UNIT- II

V (a) The following bearings were observed in running a closed traverse.

Line	F.B	B.B
AB	$81^0$05'	$260^0$20'
BC	$120^0$20'	302^0 35'
CD	$171^0$35'	351^0 45'
DE	$230^0$50'	$50^0$05'
EA	$310^0$50'	$131^0$10'

Determine the correct magnetic bearing of the lines. (9)

(b) Write a short note on prismatic compass. (6)

OR

VI (a) The following bearings were observed in running a closed traverse.

Line	F.B	B.B
AB	$75^0 5'$	$254^0 20'$
BC	$115^0 20'$	$296^0 35'$
CD	$165^0 35'$	$345^0 35'$
DE	$224^0 50'$	$44^0 5'$
EA	$304^0 50'$	$125^0 5'$

At what stations do you suspect local attraction? Determine the correct magnetic bearing. If the declination was 5^0 30'E. What are the true bearings? (9)

(b) How true bearing differs from magnetic bearing? Find the magnetic declination at a place if the magnetic bearing of the sun at noon is $345^0 20'$. (6)

UNIT- III

VII (a) The following figures were extracted from a level field book, some of the entries being illegible to exposure to rain. Insert the missing figures and check your results. Rebook all the figures and check your results. Rebook all the figures by the 'rise' and 'fall' method.

Station	Back Sight	Intermediate Sight	Fore sight	Rise	Fall	Reduced Level	Remarks
1	2.280					232.460	B M 1
2	1.650		x	0.020			
3		2.105			x		
4	X		1.960	x			
5	2.050		1.925		0.300		
6		x		x		232.255	BM 2
7	1.690		x	0.340			
8	2.865		2.100		x		
9			x	x		233.425	BM3

(9)

(b) Explain the curvature and refraction error that occur in levelling. Find the correction for curvature and for refraction for a distance of 1215 meters. (6)

OR

VIII (a) What are the temporary adjustments in levelling. (9)

(b) It was required to ascertain the elevation of two points P and Q and a line of levels was run from P and Q. The levelling was then continued to a benchmark of 85.36, the readings obtained being as shown below. Obtain the R.L of P and Q.

B.S	I.S	F.S	R.L	Remarks
1.622				P
1.874		0.354		
2.032		1.780		
	2.362			Q
0.984		1.122		
1.906		2.284		
		2.036	85.36	BM

(6)

UNIT – IV

IX (a) Explain the method of cross sectioning with the help of neat sketch. (9)

(b) Discuss various methods of interpolating the contours. (6)

OR

X (a) What are the characteristic features contouring. (9)

(b) Explain the term reciprocal levelling. (6)

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