2106220106

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2022

BASIC SURVEYING

[Maximum Marks: **75**]   [Time: **3** Hours]

(PART-A)
I.   (Answer *all* the following questions in one word or one sentence)

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	Tape used for linear measurements of a very high degree of precision is ………...	M1.02	R
2.	The experienced chainmen at the rear end of the chain is called ……...	M1.02	R
3.	Define surveying.	M1.01	R
4.	Describe local attraction.	M2.02	U
5.	Surveyor's compass is graduated in ………..system.	M2.01	R
6.	Define mean sea level.	M3.01	R
7.	Describe level surface.	M3.01	R
8.	List different types of levelling.	M4.01	R
9.	In a dumpy level the axis of bubble tube should be ……..to the vertical axis.	M4.03	R

(PART-B)
II. (Answer any *eight* questions from the following)

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	List the instruments used for chaining.	M1.02	R
2.	Describe resection in plane table surveying.	M1.04	U
3.	Classify survey based on object of survey.	M1.01	R
4.	List the different methods of balancing a traverse.	M2.04	U
5.	Convert the following bearings i) $170^0 12'$ ii) $211^0 54'$ iii) $N5^0 42'$	M2.01	U
6.	The magnetic bearing of a line is $48^0 24'$. Calculate the true bearing if the magnetic declination is $5^0 38'$East.	M2.02	A

7.	Describe the following terms i) Height of instrument ii) Back Sight iii) Fore sight	M3.02	R
8.	Define parallax and mention the methods to eliminate parallax.	M3.02	R
9.	List the fundamental relations among the axes of a level.	M4.03	U
10.	Explain profile levelling.	M4.02	U

(PART-C)
III.(Answer all questions. Each question carries seven marks)

(6 x 7 = 42 Marks)

Module Outcome   Cognitive level

1.	Explain the intersection method of plane table survey.	M1.04	U
	OR		

2.	Plot the following cross staff survey of a field and calculate its area.
	
	                 E 250
	      D20 H200
	      C40 G120
	              F100 B 60
	              A0
		M1.03	A

3.	List the conditions to be fulfilled by survey stations.	M1.02	U
	OR		
4.	Compare prismatic compass and Surveyor's compass.	M2.01	U
5.	The following bearings were observed with a compass. Calculate the interior angles of the traverse ABCDE. 	Line	Fore Bearing	Line	Fore Bearing
AB	$64^030'$	DE	$210^030'$
BC	130^0	EA	$310^030'$
CD	47^0				M2.02	A
	OR		
6.	The following bearings were observed while traversing with a compass. Mention which stations were affected by a local attraction and determine the corrected bearings. | Line	F.B	B.B
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AB	$45^045'$	$226^010'$
BC	$96^055'$	$277^05'$
CD	$29^045'$	$229^010'$
DE	$324^048'$	$144^048'$		M2.02	A

7.	During a construction work, the bottom of a R.C chhajja, A was taken as a temporary B.M. (R.L 63.120). The following notes were recorded. Reading on inverted staff on benchmark A: 2.232 Reading on peg P on ground: 1.034 Change of instrument Reading on peg P on ground: 1.328 Reading on inverted staff on bottom of cornice B: 4.124 Enter the readings in a level book page and calculate the R.L of cornice B.	M3.03	A

OR

<table>
<tr><td>8.</td><td colspan="2">A page on the old level was found to be damaged. Find out the missing readings marked with a cross and complete the level book page by rise and fall method.</td><td>M3.03</td><td>A</td></tr>
</table>

Station	BS	IS	FS	Rise	Fall	RL
1.	2.285					232.46
2.	1.650		X	0.02		
3.		2.105			X	
4.	X		1.960	X		
5.	2.050		1.925		0.300	
6.		X		X		232.255
7.	1.690		X	0.340		
8.	2.865		2.100		X	
9.			X	X		233.425

9.	List different types of level and explain any two in detail.	M3.02	R

OR

10.	Explain reciprocal levelling.	M4.01	U

11.	Explain the permanent adjustments of dumpy level.	M4.03	U

OR

12.	The following consecutive readings were taken with a dumpy level. 1.895, 1.500, 1.865, 2.570, 2.990 2.020, 2.410, 2.520, 2.960, 3.115 The level was shifted after fourth, sixth and eighth readings. The R.L of first point was 30.5. Rule out a page as a level book and fill all the columns using height of instrument method.	M4.02	A