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

SURVEYING -II

(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. Define the term levelling head of theodolite.
2. What do you mean by Fast needle method?
3. What do you understand by Omitted Measurements?
4. What are the object of tachometric survey.
5. Mention the various methods of setting out a simple curve. (3x2=6)

PART - B

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

1. What are the conditions to be satisfied while a theodolite is in permanent adjustment?
2. The independent co-ordinates of the stations of a traverse ABCD are (-10,0), (0,10), (10,0) and (0,-10). Find the area of traverse.
3. Write the procedure for determination of Constants of Tacheometer.
4. Write the procedure of Single plane method if both the instrument axes P and R at same level.
5. If two straight intersects at chainage 2800 m and the angle of intersection is 120^0. If the radius of the simple curve to be introduced is 600 m. Find tangent distance, chainage of point of tangency and chainage of point of intersection.
6. What are the Precautions to be taken while using a total station.
7. Write the procedure for prolonging a straight line with sketch. [4x6 =24]

PART - C

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

UNIT I

III (a) Draw the neat sketch of theodolite, mention their parts and explain (any three) functions. (9)

(b) How do you measure Horizontal angle by Reiteration method, draw a neat sketch. (6)

OR

IV (a) Briefly explain the following technical terms.

(i) Vertical axis (ii) Least count (iii)Swinging (iv)Face right Observation (7)

(b) What is Double sighting method and write their procedure with a neat sketch. (8)

UNIT- II

V (a) Explain how traverse can be done by using deflection angles, draw a neat sketch. (7)

(b) Find the area of the traverse by using Independent Coordinate (400, 400) method using the given data.

Side	Northing	Southing	Easting	Westing
AB	107.400		62.000	
BC		122.600	102.900	
CD		77.900		45.000
DA	93.100			119.900

(8)

OR

VI (a) Determine the omitted measurements. The given readings below refers to closed traverse ABCDEA.

Line	Length(m)	Bearing
AB	720	?
BC	?	N 60^0 48'E
CD	1300	N 40^0 20'W
DE	840	S 45^0 40'W
EA	610	S 03^0 50'W

(9)

(b) Explain the methods of balancing the traverse. (6)

UNIT- III

VII (a) Determine the RL of top of temple from the following observations. Station A, B and Top of temple are in the same vertical plan.

Instrument at	**Vertical angle**	**Reading on BM**	**Remarks**
A	11^0 53' 00"	1.375 m	RL of BM =30.150 m
B	8^0 05'00"	1.260 m	Distance AB = 30 m

(8)

(b) Derive the relationship to find RL of a point 'Q' at top with its foot inaccessible and the nearest station at a higher level, the instrument used being a theodolite. (7)

OR

VIII (a) What are the different system adopted in tacheometric measurements? (6)

(b) Find the gradient from A to B from the following observations made with a tacheometer fitted with an anallatic lens, the instrument constants being 100 and 0.

Instrument at	**Staff station**	**Bearing**	**Readings of stadia hair**	**Vertical angle**
0	A	345^0	1.000, 2.400, 2.800	$+15^0$
	B	75^0	0.800, 2.400, 4.000	$+10^0$

(9)

UNIT – IV

IX (a) Calculate the Ordinates from a 200 m long chord at 10 m interval to set out a simple circular curve of 10^0 30' 20" (9)

(b) Write in brief the steps involved in orientation of total station by Resection method. (6)

OR

X (a) Two tangents intersect at a chainage of 101+60 in terms of chain station. The chain used is 20 m length with 100 links. Calculate the necessary data for setting out a curve of 300 m radius to connect the two tangents. If the deflection angle is 46^0 30' 20". Take the peg interval as 100 links, use the method of offsets from the chords produced? (9)

(b) What is Remote sensing? What are its application in civil engineering field? (6)

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