TED (10)–3022 Reg. No. .....

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THIRD SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/ TECHNOLOGY—OCTOBER, 2012

SURVEYING–II

(Common for CE, AR, QS, EV and WR)

[*Time :* 3 hours

(Maximum marks : 100)

PART—A

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. How can theodolite be used as levelling instrument ?
2. What is meant by balancing of the traverse ?
3. State the objects of tacheometry.
4. What is remote sensing ?
5. What you mean by Apex distance of the curve ? (5×2=10)

PART—B

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

1. How you will perform the temporary adjustment of a transit theodolite ?
2. Calculate the deflection angles from the data given below for the open traverse ABCDE. Bearing of AB = 46°10′, ∠ABC = 106°50′, ∠BCD = 109°30′, ∠CDE=90°30′.
3. Describe the method to measure a vertical angle.
4. What is meant by Degree of the curve ? Derive the relation between radius and degree of curve.
5. Distinguish between arial photogrammetry and terrestrial photogrammetry.
6. When would you suggest a theodolite traverse by the method of deflection angles ? Explain the method with neat sketch.
7. Differentiate the following :
   (i) Tacheometer and theodolite
   (ii) Face left and face right observation. (5×6=30)

Marks

PART—C

(Answer *one* full question from each unit. Each question carries 15 marks.)

UNIT—I

III (a) Describe briefly how would you measure a horizontal angle by repetition method. 6

(b) Explain the various methods for the prolongation of a straight line. 9

OR

IV (a) Explain the procedure of measuring the horizontal angle when several angles, having a common vertex are to be measured. 6

(b) State the fundamental lines of a theodolite and any four relationship. 9

UNIT—II

V (a) What do you understand omitted measurements ? What are the various case ? 6

(b) The following is the record of a theodolite closed traverse. It is necessary to connect A to F through a tunnel. Find the length and bearing of the tunnel 'FA' :

Line	*Length (m)*	*Bearing*
AB	1855	N 35°30′ E
BC	1388	S 70°30′ E
CD	1700	N 75°30′ E
DE	2055	S 25°30′ E
EF	2235	S 70°30′ W

9

OR

VI (a) State the meaning of consecutive co-ordinate. How you will find out the correction of consecutive co-ordinate by Bowditch's and Transit rule. 6

(b) The latitude and departure of the survey lines of a traverse ABCD are given as follows :

Line	*Latitude*		*Departure*	
	N	*S*	*E*	*W*
AB	204.60		113.90	
BC		234.90	205.80	
CD		150.70		86.00
DA	181.00			233.70

Calculate the area if the sides are measured in metres by co-ordinate method. 9

Marks

UNIT—III

VII (a) Describe the principle of tacheometric survey. 6

(b) The following are the data relative to observations made on a vertically held staff with a tacheometer fitted with an anallatic lens :

Instrument Station	*Height of axis*	*Staff Station*	*WCB*	*Vertical angle*	*Hair reading*
O	1.56 m	A	12°15′	0°0′	1.88, 2.25, 2.62
		B	60°45′	+15°10′	1.83, 2.15, 2.47

Calculate the distance 'AB' and the reduced level of A and B, when the RL of O = 130.250 m. 9

OR

VIII (a) Write the procedure to find out the RL of object when the base is inaccessible. The object and instrument stations are in the same vertical plane and instrument axes at different level. 6

(b) Find the reduced level of the top of a chimney from the following data :

Instrument Station	*Reading on BM*	*Vertical angle*	*RL of BM*	*Distance AB in m*	*Remarks*
A	1.578	10°12′	543.075 m	30 m	A and B in the line with the top of the chimney
B	1.269	8°20′			

9

UNIT—IV

IX (a) List an application of GIS in Civil Engineering. 7

(b) Briefly describe with sketch the classification of circular curve. 8

OR

X (a) List the five parts of Total Station. 5

(b) Calculate the ordinates of 7.5 m intervals for a circular curve given that the length of the long chord is 60 m and the radius 180 m. How you can set out the same in the field ? 10