Total No. of Questions—8] [Total No. of Printed Pages—3

Seat No.	

[5559]-106

S.E. (Civil) (I Sem.) EXAMINATION, 2019

SURVEYING

(2015 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. :– (I) Answer Q. 1 or Q. 2, Q. 3 or Q. 4 , Q. 5 or Q. 6, Q. 7 or Q. 8

(II) Neat sketches must be drawn wherever necessary.

(III) Figures to the right indicate full marks.

(IV) Assume suitable data, if necessary.

(V) Use of electronic pocket calculator is allowed.

(VI) Use of cell phone is prohibited in the examination hall.

Que.1 a) Explain the following with sketches : [6]

i) Lifting lever ii) U-fork with plumb bob iii) WCB iv) Eye ranging

b) The following reciprocal levels were taken with a level. [6]

Instrument at	Staff reading on		Remarks
	A	B	
A	1.885	2.890	**Dist. AB** = 900 m
B	0.535	1.895	**RL of A** = 300 m

Determine i) True elevation difference between A & B

ii) RL of B

iii) Error in the collimation adjustment of level

P.T.O.

OR

Que.2 a) Determine Fore bearing and back bearings of all lines of closed pentagon with following data: **[6]**

i) Traversing was done in anticlockwise direction

ii) All points are free from local attraction

iii) In Traverse ABCDEA Fore bearing of line CD is observed $35^{O}30'$

b) What are the different axes of a level? Express different relations of each axes of dumpy level? **[6]**

Que.3 a) Write short notes on **[6]**

i) Direction angle method ii) Error of closure in Theodolite traversing

b) Describe the method of determination of Tachometric constants? **[6]**

OR

Que.4 a) Following observations were made during tacheometric survey with holding staff vertical and tacheometer was fitted with analytic lens. Compute the length of line AB and RL of B. **[6]**

Inst. St^{n}.	H.I.	Bearing	Staff St^{n}.	Vertical Angle	Cross Hair Readings	Remark
BM	1.50	30^{O}	A	$-5^{O}30'$	1.000, 1.110, 1.250	RL of BM = 200m
		120^{O}	B	$+10^{O}30'$	0.950, 1.150, 1.260	

(Consider multiplying constant m = 100 and C = 0)

b) Wire short notes on : **[6]**

i) Prolongation of straight line ii) Balancing the traverse

Que.5 a) Draw neat sketch of simple curve and write equation for followings in terms of Radius of Curve as 'R' and Deflection angle as 'ϕ' : **[6]**

i) Long chord ii) Versed sign iii) Apex distance

b) Two tangents intersects at a chainage of 1190 m with deflection angle of 36^{O} .Calculate necessary data for setting out a curve with radius of 300 m. Solve by Deflection angle method. Take peg interval = 30 m. **[7]**

OR

Que.6 a) A simple circular curve is to be set by offset from chord produced method . The curve has following data : **[7]**

i) Radius of curve = 600 m ii) Deflection angle of curve = 29^{O}

iii) Chainage of intersection = 2900 m. iv) Peg interval = 30 m

b) What is transition curve? State the various types of transition curves with the help of neat sketch. Explain briefly its necessity? **[6]**

Que.7 a) Write short note on tunnel Survey with respect to its necessity, marking of alignment through Shaft and drawings required? **[7]**

b) What is ETS? Enlist various advantages of ETS over other surveying instruments? **[6]**

OR

Que.8 a) Explain with sketches horizontal and vertical controls in setting out building? **[6]**

b) Write short note on Satellite based positioning system (SBPS) ? **[7]**