

**B.TECH. SEM -IV (CIVIL) 2014 COURSE (CBCS) : WINTER -
2017**

SUBJECT: SURVEYING

02.30 PM TO 05.30 PM

Day: **Tuesday**
Date: **21/11/2017**

Time:
Max. Marks: 60

W-2017-2069

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat diagram **WHEREVER** necessary.

- Q.1** a) What is local attraction? Explain how it is detected. [05]
b) Explain with neat sketch Indirect method of ranging. [05]

OR

- Q.1** The fore and back bearings of closed traverse conducted are given below [10]

Line	Fore bearing	Back bearing
AB	S 55 ⁰ 30' E	N 55 ⁰ 30' w
BC	N 68 ⁰ 15' E	S 66 ⁰ 00' w
CD	N 49 ⁰ 30' W	S 44 ⁰ 45' E
DA	S 20 ⁰ 15' w	N 17 ⁰ 45' E

- 1) State the stations which are affected by local attraction and by how much
- 2) Determine the correct bearings
- 3) Calculate the true bearings if the declination was 2⁰ 30' w

- Q.2** a) State and explain temporary adjustment of dumpy level with neat sketch. [05]
b) Explain with neat sketch reciprocal leveling. [05]

OR

- Q.2** The following is the page of a level field book. Fill in the missing readings and calculate the RL of all the points. Apply the usual checks.

Station	B.S	I.S	F.S	Rise	Fall	R1	Remarks
1	2.150						BM ₁
2	1.645		?	0.500			
3		2.345					
4	?		1.965	?	?		
5	2.050		1.825		0.400		
6		?		?		451.50	
7	1.690			0.120	?		
8	2.865		2.100			?	
9			?	?		452.25	

(P.T.O.)

- Q.3** Describe the method of measurement of Horizontal angle with theodolite? [10]
Give a specimen observation table and state what errors will be eliminated by repetition method.

OR

- Q.3** Calculate the corrected consecutive coordinate for the following observations. Apply Bowditch rule and show all the calculations.

Line	Length (m)	Consecutive coordinates			
		N	S	E	W
AB	250	107.97		3.77	
BC	123	14.39		249.57	
CD	256	-	122.94	4.12	
DA	108	00.0			256.00

- Q.4 a)** List the fundamental axes of 20" transit theodolite and state its relationship. [05]

- b)** Write step wise procedure to measure deflection angles using transit theodolite with neat sketch. [05]

OR

- Q.4** A tachometer was fixed with an analytic lens and having multiplying constant 100 was used and the following observations were made on staff held vertical. [10]

Instrument station	HI (m)	Vertical angle	Staff station	Staff reading
P	1.45	+3 ⁰ .30	M	1.250, 1.835, 2.465
P	1.45	-6 ⁰ .30	Q	1.450, 1.950, 2.300

R₁ of station M is 150.55m calculate R₁ of P and Q and horizontal distance PQ.

- Q.5 a)** Explain any four notations of simple circular curve with neat sketch. [05]

- b)** State the procedure of setting out curve by offsets from long chord. [05]

OR

- Q.5** Two straights intersects at chainage of 1300m with deflection Angle 50⁰. Calculate data necessary to set out the curve of radius 300 m by Rankin methods of deflection angle.

- Q.6 a)** What is meant by plane tabling? State the situation under which it is used. [05]

- b)** State merits and demerits of plane table survey. [05]

OR

- Q.6** What is orientation? State the necessity of orientation. List method of orientation and explain any one method.

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