Dr. Ashish

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY
WAKNAGHAT
T-3 April-2019
4th Semester (Civil Engineering)

Course Code: 10 B11CE412 **Max. Marks: 35**
Course Name: Surveying **Max. Time: 2 hrs**
Course credit: 4

Note: All questions are compulsory. Assume suitable data if required. This paper contains two numbers of printed pages

Q1.Answer the following in brief: **[5]**

a. What are the multiplying constant and additive constant of a tacheometer?
b. What is centring in plane tabling?
c. Define the term Bench Mark. Name different types of Bench Mark.
d. Define meridian distance of a line.
e. What is refraction error in leveling? How it is corrected?

Q2. Explain thoroughly various characteristics of counters with neat sketch. **[4]**

Q3. A Survey Line BAC crosses a river, A and C being on the near and opposite banks respectively. A perpendicular AD, 40 m long, is set out at A. if the bearings of AD and DC are 48° 30′ and 288° 30′ respectively, draw the sketch and find the bearings of the chain line BAC and also the chainage of C when that of A is 207.8 m. **[4]**

Q4. The perpendicular offsets take from a chain line at 10 m interval to an irregular boundary in the following order:

Chainage	0	10	20	30	40	50	60	70	80
Offset (m)	6.88	10.12	12.45	14.88	15.66	13.02	11.87	9.33	6.44

Calculate the area enclosed between the survey lines and boundary by average ordinate method and Trapezoidal method? Compare the both Results and comment. **[4]**

Q5. The following observation were made using a tacheometer fitted with an annalatic lens, the multiplying constant being 100.

Inst Station	Ht. of axis	Staff station	WCB	Verticalangle	Hair readings	remarks
O	1.550	A	30° 30'	4° 30'	1.155,1.755,2.355	RL of O 150 m
		B	75° 30'	10° 15'	1.25,2.0,2.750	

Calculate the distance AB and Rl of A and B. find also the gradient of the line AB. **[6]**

Q6. (a) What do you understand by closing error of a traverse? How it is determined? **[2]**

(b) Balance the traverse ABCDEA if required? **[4]**

		Consecutive coordinate	
Line	Length (m)	Latitude (m)	Departure (m)
AB	70	21.5	-65.45
BC	80	-80.755	-5.25
CD	43	-41.0	13.55
DE	38	-14.25	35.15
EA	115	114.15	22.315

Q7. An incomplete traverse task is obtained as follows. Calculate the missing quantities L and α. **[6]**

Line	Length (m)	Bearing (m)
AB	725	α
BC	1060	N62 °30 ' E
CD	L	N 37 °36 ' E
DE	945	S 55 °18 ' W
EA	577.2	S 2 °42 ' W