Ref. No. : Ex/Arch/CE/T/216/2024

Name of the Examinations: BACHELOR OF ARCHITECTURE SECOND YEAR FIRST SEMESTER - 2024

Subject : SURVEYING **Time : 3h** **Full Marks : 100**

PART A

Instructions : Answer any 5 questions

1 **a** How many links are there in a 30 m long metric chain? **1**

b What are the two principles of surveying? **2**

c With the help of a diagram explain the following kind of rangings. **5**
I) Direct ranging
II) Indirect ranging when end stations of a line are not intervisible due to interveiwing raised ground.

2 In levelling across a river, two pegs A and B were fixed on opposite banks. The following readings were taken **8**

Position of Level	*Staff reading at*	
	A	*B*
Level at A	1.871	1.469
Level at B	1.664	0.706

If R.L. of A is 50.865, find the R.L. of the point B.

3 The length of a survey line measured with a 30 m chain was found to be 631.5 m. When the chain was compared with a standard chain, it was found to be 0.10 m too long. Find the true length of the survey line. **8**

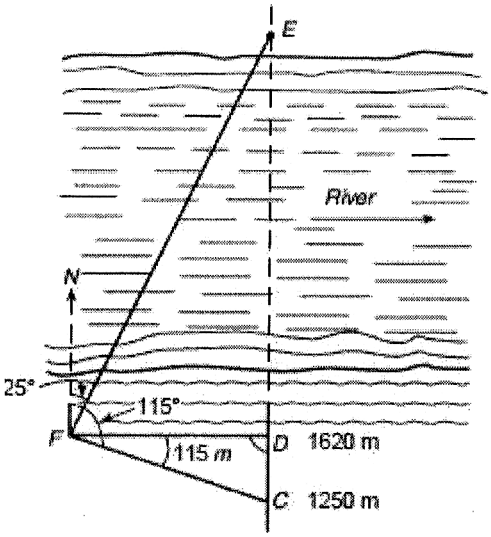
4 **a** Which compass is used to measure whole circle bearing (W.C.B) **2**

b What is a traverse? Explain in your own words the two different types of traverse with the help of diagram **2**

c Convert the following whole circle bearings to quadrantal bearings: **4**
(i)12° 45′ (ii) 160° 10′ (iii) 210° 30′ (iv) 285° 50′.

5 A survey line CDE crosses a river, D being on the near bank, and E on the opposite bank. A perpendicular DF = 150 metres is ranged at D on the left. From **8**

F bearings of E and C are observed to be 25o and 115o respectively. If the chainage of C is 1250 metres and that of D is 1620 metres, find the chainage of E.



6 A line was measured by 20 m and 100 ft. chain respectively and was 12 chains in length in each case. If the 30 m chain was 0.2 m too long, find the correct length of the 100 ft. chain upto three decimal places. Take 1 m = 3.28 ft. **8**

PART B

Instructions : Answer any 4 questions

7 The bearings of the sides of a closed transverse ABCDEA are as follows **15**

Side	F.B.	B.B.
AB	107° 15′	287° 15′
BC	22° 00′	202° 00′
CD	281° 30′	101° 30′
DE	181° 15′	1° 15′
EA	124° 45′	304° 45′

Compute the interior angles of the traverse and exercise necessary checks.

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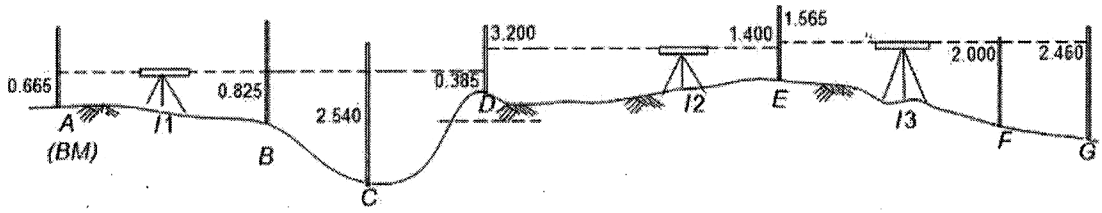
9 Find the RLs of all the points, B,C,D,E,F,G using heigh of instrument method provided that RL or BM of A is 100 m **15**



10 The following offsets were taken from a chain line to an irregular boundary : **15**

Distance in m	0	6	12	18	24	36	48	60	72	81	90
Offset in m	3.6	3.0	2.4	1.8	1.2	1.3	2.1	2.4	3.0	3.3	3.9

Calculate the area enclosed between the chain line, the irregular boundary and the end offsets by Simpson's rule and trapezoidal rule

11 Construct a diagonal scale 1 cm =2.5 Km and show 25.8 Km. **15**