Code No: **20CE3T03**

R20

II B. TECH I SEMESTER REGULAR EXAMINATIONS, MARCH - 2022
SURVEYING
(CIVIL ENGINEERING)

Time: 3 Hours **Max. Marks: 70**

Note: Answer **ONE** question from each unit **(5 × 14 = 70 Marks)**

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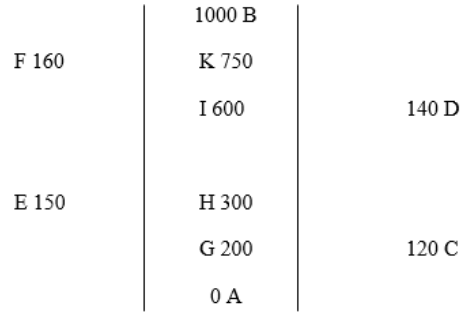
UNIT-I

1. a) Define Surveying. What are the basic principles of Surveying? Explain. [7M]
   b) Illustrate about the instruments you use for chaining. [7M]

(OR)

2. a) What is ranging? Explain the method of Indirect ranging. [6M]
   b) Plot the cross-staff survey of a field ACDBFE from the field book measurements given in Figure and determine the area of the field. [8M]



UNIT-II

3. a) Give in table, the differences between Prismatic compass and Surveyor's compass. [6M]
   b) A closed traverse ABCD was conducted round a lake and the following bearings were obtained. Determine the stations effected from local attraction and obtain correct bearings. The bearings of the sides of a closed traverse ABCD are as shown below: [8M]

Line	FB	BB
AB	124^0 30'	304^0 30'
BC	68^0 15'	246^0 00'
CD	310^0 30'	135^0 15'
DA	200^0 15'	17^0 15'

(OR)

4. a) What are the sources of errors in compass survey? What precautions will you take to eliminate the errors? [6M]
   b) The reduced bearings of the lines of traverse are given below. Convert all to Whole circle bearings, Determine Included angles of the given traverse. [8M]

Line	FB
AB	N60°25'E
BC	S85°30'E
CD	S25°45'W
DE	S64°30'W
EF	N82°45'W
FA	N28°14'W
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UNIT-III

5. a) What are the different methods of Levelling? Explain in detail. [6M]

   b) Data from a differential leveling have been found in the order of B.S., F.S. etc. starting with the initial reading on B.M. (elevation 150.485 m) are as follows: 1.205, 1.860, 0.125, 1.915, 0.395, 2.615, 0.880, 1.760, 1.960, 0.920, 2.595, 0.915, 2.255, 0.515, 2.305 and 1.170. The final reading closes on B.M. Put the data in a complete field note form and carries out reduction of level by Rise and Fall method. All units are in meters. [8M]

(OR)

6. a) Discuss in detail the method of direct contouring. [6M]

   b) The following consecutive readings were taken with a level 1.904, 2.653, 3.906, 4.026, 1.964, 1.702, 1.592, 1.261, 2.542, 2.006 and 3.145. The instrument was shifted after 4^{th} and 7^{th} readings. The 1^{st} reading was taken on a staff held on B.M of R.L of 100m. Calculate the R.L of points by using Height of Instrument. [8M]

UNIT-IV

7. a) What are the necessary temporary adjustments for setting a theodolite? Explain in detail. [6M]

   b) How do you measure the horizontal angle using Reiteration method? [8M]

(OR)

8. a) Derive an equation for Distance when the line of sight is horizontal and staff is vertical. [7M]

   b) A staff was held vertically at a distance of 90m from an external focusing Theodeolite and stadia reading taken with the line of sight horizontal are 1.158, 2.055m. If the focal length of objective glass was 20cm and distance from vertical axis was 10cm. calculate i) Stadia interval, ii) Multiplying constant. [7M]

UNIT-V

9. a) The areas within the contour line at the site of reservoir and the face of the proposed dam are as follows: [7M]

   Taking 101 as the bottom level of the reservoir and 109 as the top level, calculate the capacity of the reservoir by Trapezoidal and Prismoidal formula.

Contour	**Area, m^2**
101	1,000
102	12,800
103	95,200
104	1,47,600
105	8,72,500
106	13,50,000
107	19,85,000
108	22,86,000
109	25,12,000

   b) What do you understand by Remote sensing? Explain in detail [7M]

(OR)

10. a) Why curves are required? Sketch a Compound curve representing all the elements? Explain in detail. [7M]

    b) What is a Total station? What are the applications of Total stations? [7M]

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