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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fourth Semester, B.E. - Civil Engineering

Make-up Examination; July - 2016

Surveying - II

Time: 3 hrs *Max. Marks: 100*

***Note**: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.*
ii) Missing data, if any, may suitably assume.

UNIT - I

1 a. Briefly explain Transit and Bowditch's graphical method of adjustment of traverse. 8

b. Explain closing error. 4

c. The table below gives the lengths and bearings of the lines of Traverse ABCDEA. The length of EA having been omitted. Calculate the length, 8

Line	→	Length	→	Bearing
AB	→	204	→	87º30′
BC	→	226.0	→	20º20′
CD	→	187.0	→	208º0′
DE	→	192.0	→	210º 3′
EA	→	?	→	?

2 a. What are omitted measurements? How they calculated? 8

b The following bearings are observed while traversing with compass, 12

Line	AB	BC	CD	DE
FB	45º45′	96º55′	29º45′	324º48′
BB	226º10′	277 º 5′	209 º 10′	144º48′

Mention which station effected by local attraction and determine corrected bearing.

UNIT - II

3 a. Derive an equation for horizontal and vertical distance when base in inaccessible and instruments are same levels with sketch and procedure. 10

b. To determine the elevation of the top of the flag staff, the following observations were made, 10

Instrument station	Readings on BM	Angle of Elevation	Remarks
A	1.266	10º28′	R1 of BM
B	1.222	7º12′	= 248.362

Distance between A and B = 50 m, A and B are in the same vertical plane.

Contd….2

4 a. Derive an expression for horizontal distance and Elevation for the case of staff vertical and inclined line of sight. 10

b. A Tacheometer was set up at a station A and the reading on a vertically held staff at B were 2.255, 2.605 and 2.953. The line of sight being at an inclination of +8º24′. Another observation on the vertically held staff at BM gave the readings 1.640, 1.920 and 2.200. The inclination of the sights +1º6′. Calculate the horizontal distance between A and B and the Elevation of B. If the RL of BM = 418.685 m. The constants are 100 and 0.3. 10

UNIT - III

5 a. Derive the expression for ordinates from long chord and Radial offset in a circular curve setting. 10

b Two tangents intersect at chainage 59+60. The deflection angle being 50º30′. Calculate the necessary data for setting out a curve of 15 chain radius to connect the two tangents if it is intended to set out the curve by offset from chords. Take peg intervals equal to 100 links. Lengths of the chain being 20 m (100 links). 10

6 a. With a neat sketch explain the various elements of compound curve. Derive the relations by calculating the chainages of tangent points. 10

b. The following data refer to a right hand compound circular curve having a deflection angle of 90º. The length of the two Tangents are 350 m and 400 m respectively. Calculate the length of the two arcs. If the radius of the 1st curve is 300 m. 10

UNIT - IV

7 a. What are the segments of GPS? Describe them briefly. 10

b. Mention the applications of GPS and Errors and Accuracy in GPS. 10

8 a. Explain the components and flow diagram of working of GIS. 10

b. Define Remote sensing. Discuss the application areas. 10

UNIT - V

9 a. What are the advantages and disadvantages of total station and explain the components. 10

b. Explain the Measurement of distance using phase difference on total stations. 10

10a. Explain concepts of Terrestrial and Aerial Photogrammetry. 10

b. Explain the types of photographs and geometry of Aerial photographs. 10

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