



GOVERNMENT COLLEGE OF ENGINEERING, JALGAON

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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **CE202U - Basic Surveying**

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Maximum Marks : **60**

Duration : **3 Hrs**

[Edit](#) [Print](#) [View Answer Key](#) [Close](#) **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. In all questions “a” is compulsory and out of “b” and “c” solve any one.
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

- 1) a) Discuss briefly the effect of curvature & refraction in levelling. Derive an expression for curvature correction, refraction correction & combined correction. [7]
b) What is local attraction and how it is detected? [3]
c) Explain in short principles of surveying. [3]
- 2) a) Following are the latitudes and departures for a closed traverse ABCD. Compute the missing length and whole circle bearing of side DA of the traverse. [7]

Line	Latitude (m)	Departure (m)
AB	-116.10	-44.40
BC	+6.80	+58.20
CD	+80.50	+17.20
DA	?	?

- b) Explain principle axes of transit theodolite and give the relation in between them [3]
c) Write procedure for measurement of Horizontal angle by Repetition method. [3]
- 3) a) The following readings were taken with a level. The instrument having been shifted after the 4th & 6th readings. R.L of B.M. is 150.00 m. Enter the readings in the form of a level book page & reduce the levels by the rise & fall method & apply usual checks. 1.630, 2.457, 2.400, 3.560, 2.697, 2.051, 3.568, 2.500, 2.896, 3.020, 2.672. [7]
b) Define. i) Contour line. ii) Contour Interval. iii) Horizontal equivalent. [3]
c) State uses of Theodolite and explain any one in detail. [3]
- 4) a) A tachometer was set up at a station A and the reading on a vertically held staff at B. were 2.255, 2.605, and 2.955 the line of sight being at an inclination of $+8^{\circ}-24'$. Another observation on the vertically held staff of B.M. gave the following readings 1.640, 1.920 and 2.200. The inclination of the line of sight being $-1^{\circ}-6'$ calculate the horizontal distance between A & B and the elevation of B if the R. L. of B. M. is 418.685mt. the constant of the instrument were 100 & 0.30. [7]
b) Write Errors in tachometric surveying. [3]
c) Write uses of contour map. [3]
- 5) a) Explain horizontal and circular curves and their purposes. [7]
b) Write advantages of providing a transition curve at each end of a circular curve. [3]
c) Write note on setting out the compound curve. [3]
- 6) a) Write Equipments used in plane tabling and advantages and disadvantages of plane table surveying. [7]
b) Write short note on Total Station. [3]
c) Write Applications of remote sensing to Civil Engineering. [3]

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