Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14CE2001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SURVEY** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | The following consecutive readings were taken with a levelling instrument at intervals of 20m.  2.375, 1.730, 0.615, 3.450, 2.835, 2.070, 1.835, 0.985, 0.435, 1.630, 2.255 and 3.630 m.  The instrument was shifted after the fourth and eighth readings. The first reading was taken on a BM of RL 112.620m. Find the RLs of all the points. | CO1 | 20 |
| **(OR)** | | | | |
| 2. | a. | Explain the different classification of surveying. | CO1 | 5 |
| b. | A series of offsets were taken from a chain line to a curved boundary line at an interval of 5m in the following order: 0, 3.25, 4.10, 6.45, 8.90, 5.75, 8.50. Estimate the area between the chain line and the boundary line using trapezoidal and simpsons rule. | CO1 | 10 |
| c. | Compare any five differences between HOC and Rise and Fall Method. | CO1 | 5 |
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| 3. | a. | An incomplete traverse table is obtained as follows :   |  |  |  | | --- | --- | --- | | Line | Length (m) | Bearing | | AB | 100.0 | ? | | BC | 80.5 | 140°30’ | | CD | 60.0 | 220°30’ | | DA | ? | 310°15’ |   Calculate the length of DA and bearing of AB. | CO2 | 16 |
| b. | Define Reduced bearing and whole circle bearing. | CO3 | 4 |
| **(OR)** | | | | |
| 4. |  | Explain working principle of repitation method and reiteration method with neat sketch. | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | The following observations were made in a tachometeric survey.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Inst.  Station | Height of axis | Staff station | Vertical angle | Hair readings  (m) | Remark | | A | 1.345 | BM | -5°30’ | 0.905, 1.455, 2.005 | RL of BM = 450.500m | | A | 1.345 | B | +8°0’ | 0.755,1.655, 2.555 | | B | 1.550 | C | +10°0’ | 1.500, 2.250, 3.000 |   Calculate the RLs of A,B and C and the horizontal distances AB and BC. The tachometer is fitted with an anallatic lens and the multiplying constant is 100 and additive constant is 0. | CO2 | 20 |
| **(OR)** | | | | |
| 6. |  | Explain Tangential Tacheometry with all cases. | CO2 | 20 |
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| 7. | a. | Describe the step by step procedure for setting out a simple curve by linear methods. | CO3 | 10 |
| b. | Expalin different types of simple curves. | CO3 | 10 |
| **(OR)** | | | | |
| 8. |  | A simple circular curve of radius 150m is to be laid between the straights AB and BC at an intersection angle of 132° 50’ the length of the long chord being 120m. Calculate the necessary offsets from long chord at an interval of 15m. Use both exact and approximate formula. | CO3 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Expalin Sun Luminous and Non Luminous signals. | CO3 | 10 |
| b. | A steel tape was exactly 30 m long at 20oC when supported throughout its length under a pull of 10 kg. A line was measured with this tape under a pull of 15 kg and at a mean temperature of 32oC and found to be 780 m long. The cross sectional area of the tape = 0.03 cm2, and its total weight = 0.693 kg. Coefficient of thermal expansion for steel = 11 x 10-6 per oC and E for steel = 2.1 x 106 kg/cm2. Determine the true length of the line if the tape was supported during measurement (a) at every 30 m. | CO2 | 10 |