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

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**End Semester Examination – Nov/Dec – 2018**

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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. | a. | The following consecutive readings were taken with 4m staff at a common interval of 30m. The first reading was taken at a BM having RL of 100m. the instrument was shifted After the 4th and 9th readings rule out a page of level book, enter readings given and also calculate the reduced levels of a points by using Height of collimation(HOC)/Height of instrument method and Rise and fall method. Also apply arithmetic check  Consecutive readings are: 2.650, 1.745, 0.625, 0.260, 2.525, 2.160, 1.235, 0.870, 1.365, 0.625, 1.790 and 2.535. | CO1 | 15 |
| b. | Explain the steps involved in temporary adjustment of leveling instruments with neat sketch. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Describe the characteristic features of contour along with a neat sketch, how you would locate one in the field. | CO2 | 12 |
| b. | The following is an incomplete page of level book in which X indicates missing entry line. Calculate all the missing entries and complete the page of level book. Also give the usual arithmetical check.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | BS | IS | FS | Rise | Fall | RL | Remarks | | 2.56 |  |  |  |  | 100 | BM | |  | 3.54 |  |  | ? | ? |  | |  | 3.20 |  | ? |  | ? |  | |  | 2.34 |  | ? |  | ? |  | | 1.95 |  | ? | 1.08 |  | ? | CP | |  | 2.44 |  |  | X | ? |  | |  |  | 3.46 |  | X | ? |  | | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | ABCDA is a closed traverse in which the bearing of DA and length of BC have not been recorded. The rest of the field records are as follows:   |  |  |  | | --- | --- | --- | | **LINE** | **LENGTH (m)** | **BEARING** | | AB | 335 | 181 o18’ | | BC | ? | 90 o00’ | | CD | 408 | 357o36’ | | DA | 828 | ? |   Compute the length of BC and Bearing of DA. | CO2 | 10 |
|  | b. | Explain Repetition method and reiteration method with neat sketch. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Derive the equation for the reduced level and distance using heights and distances method if the instruments are at different levels. | CO3 | 5 |
| b. | Calculate the latitude, departure and closing error for the following traverse. Adjust the traverse using Bowditch’s Rule.   |  |  |  | | --- | --- | --- | | Line | Length (m) | Bearing | | PQ | 80.0 | 30o24’ | | QR | 185.5 | 110o36’ | | RS | 16.0 | 210o30’ | | ST | 196.0 | 120o30’ | | UP | 3.5 | 180o50’ | | CO3 | 15 |
|  |  |  |  |  |
| 5. |  | Following observations were recorded with a tacheometer fitted with an anallatical lens (K=100; C=0). Calculate the reduced levels of change point and of station T. The staff was held vertical during the observations and the reduced level of B.M was 500 m.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Instrument station | H.I(m) | Staff station | Vertical angle | Staff Readings(m) | | O | 1.5 | B.M | - 4o 30’ | 1.25, 1.4, 1.55 | | O | 1.5 | C.P | 6o 12’ | 1.55,1.75, 1.95 | | T | 1.35 | C.P | - 7o 45’ | 1.39, 1.55, 1.71 | | CO3 | 20 |
| (OR) | | | | |
| 6. | a. | To find the RL of station B, two observations are taken by a theodolite from station A-one to a BM and other to the station B, The RL of the BM is given as 510.5m, Find the RL of B and distance between bench mark and station. The records are as follows   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Inst.  Stn | Staff  Stn | Target | Vertical  Angle | Staff  Reading | | A | BM | Lower  Upper | -10o00’  -7o00’ | 0.655  2.655 | | A | B | Lower  Upper | -5o00’  +4o00’ | 1.250  3.200 | | CO3 | 10 |
| b. | Explain Theory and principles of Stadia tacheometry. | CO3 | 10 |
|  |  |  |  |  |
| 7. |  | A simple Circular curve of radius 150m is to be laid between the straights AB and BC at an intersection angle of 132o 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 |
| (OR) | | | | |
| 8. | a. | Explain the different types of curves. | CO2 | 8 |
| b. | Describe the step by step procedure for setting out a simple curve by linear methods. | CO2 | 12 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the objectives and classification of triangulation. | CO2 | 10 |
| b. | Write short notes on modern instruments used in surveying. | CO1 | 10 |