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

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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2017**

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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. | Discuss about contouring in detail. | CO2 | 10 |
| b. | Write a short notes on methods of levelling. | CO1 | 5 |
|  | c. | A level is setup at a point 200m from A and 150 m from B. The observed staff reading at A and B are 2.475m and 1.885m respectively. Find the true difference in level between A and B. | CO3 | 5 |
| (OR) | | | | |
| 2. | a. | How are temporary and permanent adjustments done in dumpy level? Why are they necessary? | CO2 | 10 |
| b. | Note down the step by step procedure for reciprocal levelling with supporting sketches. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | A closed traverse was conducted round an obstacle and the following observations were made. Find out the missing quantities.   |  |  |  | | --- | --- | --- | | Side | Length (m) | Bearing | | AB | - | 33o 45’ | | BC | 300 | 86o 23’ | | CD | - | 169o 23’ | | DE | 450 | 243o 54’ | | EA | 268 | 317o 30’ | | CO3 | 15 |
|  | b. | Derive the equation for the reduced level and distance using heights and distances method if the instruments are at different levels. | CO1 | 5 |
| (OR) | | | | |
| 4. |  | 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 | 20 |
|  |  |  |  |  |
| 5. | a. | Obtain the expressions for horizontal and vertical distances in fixed hair method when:   1. The line of sight is horizontal and staff is held vertical. 2. The line of sight is inclined and staff is held vertical. 3. The line of sight is inclined and staff held normal | CO1 | 15 |
|  | b. | Two elevated lines of sight are taken from an instrument station P of RL 165.80 m. to a staff held vertically over a station Q and the staff readings obtained are 2.950m and 1.240m. The angles of elevation of the sights are 5o16’ and 4o18’ respectively. The HI over the station P was 1.240m. Find:   1. The horizontal distance between the 2 stations. 2. RL of station Q | CO3 | 5 |
| (OR) | | | | |
| 6. | a. | Recall the method of subtense system using subtense bar? | CO1 | 4 |
|  | b. | Elaborate about anallatic lens. | CO1 | 8 |
|  | c. | From an instrument A of RL 218.560m, 2 depressed line of sights were taken to a staff held vertically over a station P. The staff readings obtained are 3.160m and 1.340m. The angles of depressions are 7o15’ and 8o7’. Find the horizontal distance between the 2 stations. Find also the RL of station P. The HI above the station A is 1.510m. | CO3 | 8 |
|  |  |  |  |  |
| 7. | a. | What are the different types of curves. Why are they used? | CO2 | 8 |
|  | b. | Outline the step by step procedure for setting out a simple curve by linear methods. | CO2 | 12 |
| (OR) | | | | |
| 8. | a. | Explain the objectives and classification of triangulation | CO2 | 12 |
|  | b. | Define and explain   1. Satellite stations 2. Reduction to center | CO2 | 8 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Two tangents AB and BC intersect at a point B at a chainage of 160m. Calculate all necessary data for setting out a circular curve of radius 120m and deflection angle 29o by the method of offsets from long chord. | CO3 | 10 |
|  | b. | Summaries various corrections applied during calculating the length of base. | CO2 | 10 |

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