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



**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. | Book the step by step procedure for collimation and rise & fall method with neat sketches and examples. | CO2 | 14 |
| b. | Elucidate about the different types of levelling. | CO1 | 6 |
| (OR) | | | | |
| 2. | a. | Describe the methods for testing and adjustment of chain. | CO1 | 15 |
| b. | State the purposes of contouring. | CO2 | 5 |
| 3. | a. | Successive readings were taken with a dumpy level along a chain line at common intervals of 20m. The first reading was taken on a chainage of 140m. The RL of the second change point was 107.215m. Calculate the RLs of all the points.  3.150, 2.245, 1.125, 3.860, 2.125, 0.760, 2.235, 0.470, 1.935, 3.225 and 3.890. | CO3 | 15 |
|  | b. | Explain how curvature and refraction correction is done in surveying. | CO3 | 5 |
| (OR) | | | | |
| 4. | a. | The following staff readings were observed successively with level, the instrument have been moved forward after the second, fourth and eighth readings: 0.875, 1.235, 2.310, 1.385, 2.930, 3.125, 4.125, 0.120, 1.875, 2.030, 3.765.The first reading was taken with the staff held upon a benchmark of elevation 132.135. Enter the readings in level book – form and reduce the levels. Apply the usual checks. Find also the difference between the last and first points. | CO3 | 15 |
|  | b. | Classify and write short note on adjustments in theodolite. | CO1 | 5 |
| 5. | a. | Derive the expression for the stadia constants in stadia tacheometry. | CO1 | 5 |
|  | b. | A closed traverse was conducted round an obstacle and the following observations were made. Find out the missing quantities.   |  |  |  | | --- | --- | --- | | **Side** | **Length (m)** | **Bearing** | | AB | 281.4 | S69o 11’E | | BC | 129.4 | N21o 49’E | | CD | ? | N19o 34’W | | DE | 144.5 | ? | | EA | 168.7 | S74o 24’W | | CO3 | 15 |
| (OR) | | | | |
| 6. | a. | The two points P and Q are on opposite sides of a valley. The tacheometer was setup at point O which is the top of the valley and the following readings were taken.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Instru-ment Station** | **HI** | **Staff Station** | **Vertical Angle** | **Hair Readings** | **Remarks** | | O | 2.1 | P | +11o15’ | 1.20, 2.150, 3.100 | RL of O = 435.5 m | | O | 2.1 | Q | +15o12’ | 0.95, 1.705, 2.460 |  |   The tacheommeter is fixed with anallatic lens ad staff was held normal throughout the observations. Find:   1. The distance between P and Q 2. The gradient of lines OP and OQ | CO3 | 12 |
|  | b. | Decipher in detail about different methods of tacheometry. | CO2 | 8 |
| 7. | a. | Point out the requirements and functions of a transition curve. | CO2 | 10 |
|  | b. | Brief about elements of a circular curve. | CO2 | 5 |
|  | c. | Obtain the relationship between degree and radius of the curves. | CO2 | 5 |
| (OR) | | | | |
| 8. | a. | Note down the procedure for setting out a simple curve by angular methods. | CO2 | 10 |
|  | b. | Two straight line P and Q meet at a chainage of 4000m. A right handed simple circular curve of 5o radius joins them. The intersection between the 2 straight lines is 125o. Tabulate the necessary data to layout a curve by Rankine’s method. Take the chord interval as 25m. | CO3 | 10 |
|  | | **Compulsory:** |  |  |
| 9. | a. | A circular curve has R = 250m and 70odeflection angle. What is its degree. Also calculate: i. Length of curve ii. Tangent length iii.Length of long chord iv. Apex distance v. Mid-ordinate of the curve | CO3 | 10 |
|  | b. | Write short notes on modern instruments used in surveying. | CO1 | 10 |

ALL THE BEST