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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**Supplementary Examination – June – 2017**

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| **Code :** | **14CE2030** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCED STRUCTURAL ANALYSIS** | **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 three hinged parabolic arch carries a point load of 20kN and 30 kN at the distance of 3 m and 7 m from the side of the support. Additionally it carries audl of 25kN/m in the right half of the span. Determine the resultant reactions at supports. Find the bending moment, normal thrust and radial shear at D, 5 m from left support. What is the maximum bending moment? | CO1,  CO3 | 20 |
| (OR) | | | | |
| 2. |  | A parabolic 3-hinged arch of span ‘l’is subjected to anu.d.l of w/m run over the entire span. Find the horizontal thrust and bending moment at any section XX. | CO1,  CO3 | 20 |
| 3. |  | A cable of horizontal span 21 m is to be used to support six equal loads of 40kN each at 3 m spacing. The central dip of the cable is limited to 2 m. find the length of the cable required and also its sectional area if the safe tensile stress is 750N/mm2. | CO1,  CO3 | 20 |
| (OR) | | | | |
| 4. | a. | The cable supports a girder which weighs 12kN/m. Determine the tension in the cable at points A & C. | CO1,  CO3 | 10 |
|  | b. | A cable of uniform cross section is used tosupport the loading shown in Fig. Determine the reactions at two supports and the unknown sag yc | CO1,  CO3 | 10 |
| 5. |  | Draw the BMD for the given continuous beam using flexibility method. | CO2 | 20 |
| (OR) | | | | |
| 6. |  | Analyse the frame shown in figure by Flexibility method  fo | CO2 | 20 |
| 7. |  | For the frame shown, use the stiffness method to:  (a) Determine the deflectionandrotationat B  (b) Determine all the reactions at supports.  (c) Draw the quantitative shearand bending moment diagrams.  E= 200 GPa, I = 60(106) mm4, A= 600 mm2 | CO2 | 20 |
| (OR) | | | | |
| 8. |  | Analyse the continuous beam shown in figure. using stiffness matrix method  Image result for continuous beam | CO2 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Analyse the space truss shown in figure and determine the forces in the member of the truss. | CO1,  CO3 | 20 |

ALL THE BEST