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 – April/May – 2017**

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| **Code :** | **14CE3013** | **Duration :** | **3hrs** |
| **Sub. Name :** | **DESIGN OF STRUCTURES FOR DYNAMIC LOAD** | **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 the failure modes of masony when subjected to cyclic load. | CO1 | 10 |
| b. | Strength and Stiffness degradation can be categorized from the hysteresis curve of concrete. Explain. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Discuss the types of lifeline system interactions. | CO1 | 10 |
| b. | Demonstrate how the performance evaluation of plain concrete hydraulic structures are carried out. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Enumerate the step by step procedure for push over analysis. | CO1 | 12 |
|  | b. | Differentiate the design of structures for blast, earthquake and wind loads. | CO2 | 8 |
| (OR) | | | | |
| 4. |  | A 120 m tall RC cylindrical chimney of uniform cross section (A = 8 m2, I = 80 m4) has weight of 25 kN/m3 and E = 3.4X104N/mm2. Determine the base moment and shear under earthquake conditions. The structure is located in seismic zone IV and is supported on raft foundation. Take damping factor as 5% and importance factor as 2. | CO2 | 20 |
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| 5. |  | Differentiate lift and drag forces. Explain in detail the procedure of wind load analysis using wind tunnel test. | CO2 | 20 |
| (OR) | | | | |
| 6. | a. | Discuss the procedure for calculating the blast loading on the structural surfaces. | CO2 | 10 |
|  | b. | Classify the types of explosion and discuss them briefly. | CO2 | 10 |
|  |  |  |  |  |
| 7. |  | A building of size 12 x 12 m in plan and 30m in height is located in Chennai at a distance of 150m from the sea face. Determine the distribution of Wind pressure along the height of the building. Assume suitable data. | CO2 | 20 |
| (OR) | | | | |
| 8. |  | “A semi active control system is advantageous over an active control system”. Justify the statement with suitable examples. | CO3 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Enumerate the stability of systems. Discuss the Lyapunov theory for stability of nonlinear systems. | CO2 | 20 |

ALL THE BEST