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 :** | **14CE3007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SEISMIC DESIGN OF STRUCTURES** | **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 design philosophy and methodology of earthquake resistant design. | | CO1 | 10 |
| b. | List the loadings and load combinations to be considered for seismic analysis as per Indian standard. | | CO1 | 10 |
| (OR) | | | | | |
| 2. | a. | Briefly explain the effect of different types of Irregularity in seismic design. | | CO3 | 10 |
|  | b. | List the different methods of seismic analysis used to analyse the structures, also differentiate each of the methods based on the concepts. | | CO1 | 10 |
|  | | | | | |
| 3 |  | Compute the base shear of building frame situated in Coimbatore for the following data  Size of the building 30X40 m  Total height of the building – 20m  Bay width in X-dir – 6m  Bay width in Y-dir – 5m  Bay width in Z-dir – 4m  Assume the masonry construction in periphery of the building  Thickness of brick work – 230 mm  Thickness of slab – 150 mm  Live load - 3kN/m2  Assume any missing data suitably. | | CO1 | 20 |
| (OR) | | | | | |
| 4. |  | Write short notes on the following (a) File Structure interaction  (b) Seismic behavior of Steel structures | | CO2 | 20 |
| 5. |  | Illustrate the ways to improve the ductility in building frames. Analyse the behaviour and detailing considerations of RCC beam column joints. | | CO2 | 20 |
| (OR) | | | | | |
| 6. |  | | Design the reinforcement for a column of size 500x500mm, subjected to the following forces. Length of column – 5m, M30 concrete and Fe415 steel, as per IS 13920.   |  |  |  |  | | --- | --- | --- | --- | |  | DL | LL | SL | | Axial load (kN) | 1200 | 700 | 650 | | Moment (kNm) | 140 | 70 | 200 | | CO1 | 20 |
| 7. |  | | State the different types of shear wall and discuss the behavior of shear wall with neat sketches. | CO3 | 20 |
| (OR) | | | | | |
| 8. | a. | Summarize short notes on the following.   1. Behavior of unreinforced 2. reinforced and infill walls . | | CO3 | 10 |
|  | b. | Discuss on Seismic design consideration of masonry building. | | CO3 | 10 |
|  | | **Compulsory:** | |  |  |
| 9. |  | Explain the concepts of pushover analysis and its implementation procedure. | | CO2 | 20 |