JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, February/March - 2022
ELEMENTS OF EARTHQUAKE ENGINEERING
(Civil Engineering)

Time: 3 Hours   **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Define earthquake and write the causes of earthquake.
 b) Discuss about analysis of earthquake waves.   [7+8]

2.a) Discuss about elastic vibration of simple structures.
 b) Explain about non steady state forced vibrations.   [7+8]

3.a) Write about Dynamic analysis procedure.
 b) Explain about Stiffness and Strength in conceptual design.   [8+7]

4. What are the principles of earthquake resistant design of RCC buildings?   [15]

5. Describe with the help of neat sketches, restoration and strengthening of RCC beams and columns.   [15]

6. For a room of 8 m × 4 m internal dimensions, the walls are constructed with 200 mm thick modular bricks, having wall thickness 300 mm in cement mortar 1:6. The load on the roof is 8 kN/m^2. Check the long wall for vertical bending and design the R.C.C lintel band for the given data.
   Design seismic coefficient =0.10; Height of wall = 4.2 m
   Lintel height from plinth = 2.4 m; Unit weight of masonry= 20 kN/m^3.   [15]

7. Describe the various earthquake-resistant features that can be introduced in masonry building to make it earthquake resistant.   [15]

8.a) List out the consequences of the failure of the Non- structural elements.
 b) Discuss briefly the effect of a structural system on the behavior of a Non-structure.
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