Code No: 138BU **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, July - 2021
ELEMENTS OF EARTHQUAKE ENGINEERING
(Civil Engineering)

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

Answer any Five Questions
All Questions Carry Equal Marks
- - -

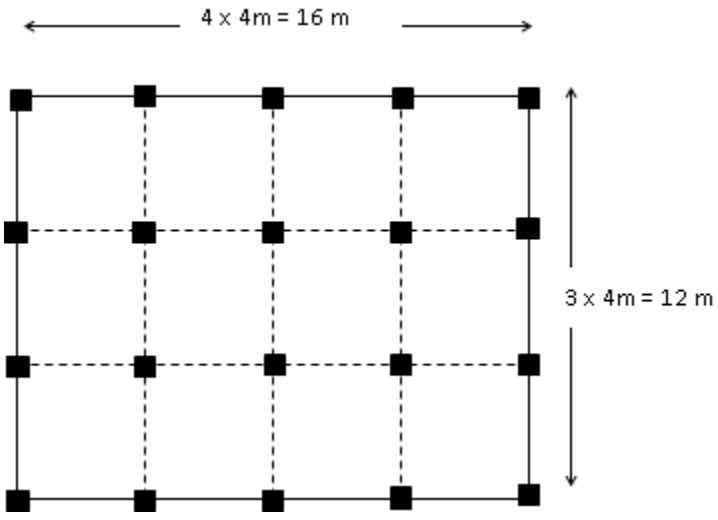
1. Explain the characteristics of different types of seismic waves. [15]

2. Explain the various causes of earthquakes. [15]

3. Explain the factors responsible for twisting of buildings and methods to handle the same. [15]

4. Explain the various seismic design requirements of buildings. [15]

5. A five storeyed RCC framed residential building, with brick infill, has the plan as shown in figure. The building is to be constructed in Bhopal. The height of each floor is 3.6 m. The soil below the foundation is assumed to be medium soil. Dead load on the roof is 2.5 kN/m^2 and 1.5 kN/m^2 on floors. Live load on roof is 1.5 kN/m^2 and 3.5 kN/m^2 on floors. The cross-sectional dimensions of beams and columns are 300 mm × 350 mm and 300 mm × 450 mm, respectively. Using equivalent static method, determine the design seismic load on the various frames of the building. Assume the stiffness of end frames is 2 times the stiffness of intermediate frames. [15]



6.a) Explain the principles of earthquake resistant design of RCC members.
b) Explain the various steps in the seismic evaluation of buildings. [8+7]

7. Explain the procedure for the determination of elastic properties of masonry assemblage. [15]

8.a) Explain the vulnerability of an open ground storey building during earthquakes.
b) Explain the methods of assessment of Ductility of structural members. [8+7]

---ooOoo---