01771

B.TECH. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

December, 2012

BICEE-011 : EARTHQUAKE RESISTANT DESIGN OF STRUCTURE

Time : 3 hours   *Maximum Marks : 70*

*Note :   Answer **any five** questions.   Use IS - **1893 : 2002** and IS **13920 - 1993**.*

1.   What are different type of waves emerges during   **14** earth-quake ? Explain with the type of motion of particles on their wavefronts.

2.   Write the different methods of ductile detailing   **14** of flexural members according to IS 13920 - 1993.

3.   A four - storey reinforced concrete frame building   **14** as shown in the figure. The height of the each floors is 3 m and total height of the building is 12 m. The dead load and normal live load lumped at respective floor. The soil below the foundation is assumed to be hard rock. Assume building is intended to be used as a hospital.

BICEE-011   1   P.T.O

$m_4 = 2500$ kN

$m_3 = 3000$ kN   3 m

$m_2 = 3000$ kN   3 m
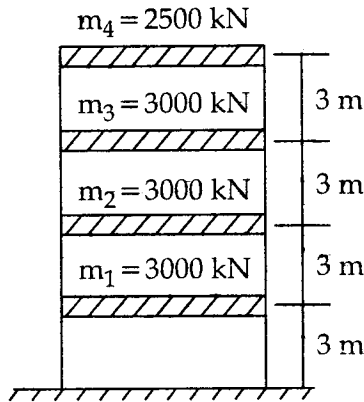
$m_1 = 3000$ kN   3 m

3 m

Figure of Question No. 3

Determine the total base shear as per IS 1893 (part 1) : 2002. Distribute the base shear along the height of the building.

4. What are different type of irregularities in building, according to IS 1893 (part 1) : 2002 ? What are the effects of earthquake to these irregular structure ?   **14**

5. Write the design principle of cantilever retaining wall with horizontal back fill.   **14**

6. What are the design consideration of designing earthquake resistant elevated tower supporting tank ?   **14**

7. Write notes on *any two* :   **14**

   (a) Magnitude of Earth-quake

   (b) Intensity of Earth-quake

   (c) Hydrodynamic pressure in water tanks

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