QPC: RJ20MTECH087 AR 19 Reg. No | | | | | | | | | | |

GIET UNIVERSITY, GUNUPUR – 765022

M. Tech (First Semester – Regular) Examinations, June – 2021

MPESE1051 – EARTHQUAKE RESISTANT DESIGN OF STRUCTURE

(Structural Engineering)

Time: 2 hrs Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A **(2 x 10 = 20 Marks)**

Q1. Answer **ALL** questions

a. What are the three main belts where majority earthquake occurs?

b. What do you mean by plate tectonics?

c. Define seismology

d. Differentiate between P-waves and S-waves.

e. Explain elastic rebound theory

f. What is impounding of buildings?

g. Give the different types of shear wall.

h. Define ductility.

i. Define modal participation factor.

j. Generalize the term soil amplification.

PART – B **(6 x 5 = 30 Marks)**

Answer ***ANY FIVE*** questions **Marks**

2. List out the causes of earthquake and explain them briefly (6)

3. Describe plate tectonic theory with a neat sketch. (6)

4. Describe and elaborate D'Alembert's Principle (6)

5. A three storeyed symmetrical RC school building situated at Bhubaneswar with following data: Plan dimension: 7 m Storey height: 3.5 m Total weight of beams in a storey: 100 kN Total weight of slabs in a storey: 280 kN Total weight of columns in a storey: 50 kN Total weight of walls in a storey: 500 kN Live load: 100 kN Weight of terrace floor: 700kN The structure is resting on hard rock. Solve for the total base shear and lateral loads at each floor level for 5% of damping using seismic coefficient method. (6)

6. Explain in detail about the concept of base isolation (6)

7. Explain the recent zone classification in India (6)

8. Write notes on:
   a) Response spectrum (6)
   b) Base line correction

--- End of Paper ---