Elements of Earthquake Engineering

(2 marks)

(1). Define Iso - seismals .

(2). Distinguish between compresion wave

 (P) and shear waves (s).

(3). List any 2 typical features of damages

 due to earthquake in masonry buildings.

(4). What is transmissibility ratio p .

(5). Writen brieg about the response reduction factor .

(6). What is dynamic magnification factor.

 Give expression also.

(7). How does floor diaphragm action effect

 performance .

(8). What are ductility provisions in   reinforced concrete construction ?

(9). What do you mean by earthquake ?

(10). Describe the theory of plate tectonic and also four major scientific development by this theory .

(11). Define response spectrum .

(12). What is Indian seismic zoning map ?

(13). Explain damping ratio and damping coefficient .

(14). Explain. 1. Logarithmic decrement

 2. Damped natural frequency

(15). Differentiate between static degree of freedom and dynamic degree of freedom .

(16). Draw mathematical model for any two structural system.

(17). What are couple shear wall ?

(18). Differentiate between magnitude and intensity of an earthquak .

(19). Give two virtue of earthquak resistant design.

(5 marks)

(1). How shear walls are classified ? Derive formula to compute moment of resistance for rectangular shear walls.

(2). Explain the seismic behaviour of masonry building during oast earthquake serval lessons learned .

(3). What is tha necessity of ductile detailing? Explain with neat sketches the detailing for flexural member as per IS 13920.

(4). Write on centre of rigidity and centre of mass.

(5). Write a short note on :-

1. Response spectra

2. Indian seismic zoning map .

(6). Classify and describe with suitable sketches different types of waves generated

by an earthquake .

(7). Write note on seismic design philosophy.

(8). Explain various methods of mesurment of earthquake .

(9). What are various kinds of dynamic loading .

(10 questions)

(1). Discuss effects of structural irregularties on the performance of RC buildings during earthquake.

(2). Derive an expression for the motion of single degree of freedom system using Newton principle for direct equilibrium approach .

(3). Describe various seismic strenthening arrangements recommended for masonry building as per IS 4326 - 1993.

(4). What are various lateral load resisting system ? Explain.

(5). Explain tectonic plate theory enumrate 7

Major tectonic plates .

(6). What are the principle causes of damages of RC buildings ? How will you identify them ?

(7). Define logrithmic decrement . Derive a formula to calculate it .

(8). Discuss the general principles involved in earthquake resistance designing of structure .

(9). Detine diafrogm and classify them on the bases of flexibilty .

(10). Explain :-

                1. Centre of mass

                2. Rigidity

                3. Hypocentre

                4. Intensity

                5. Magnitude.