Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 41028

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Eighth Semester

Civil Engineering

080100067 – EARTHQUAKE RESISTANT STRUCTURES

(Regulation 2008)

Time : Three hours Maximum : 100 marks

(Use of IS 1893 – 2002 is permitted)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Distinguish between dynamic and static loads.
2. Define the term Resonance.
3. What is meant by Degree of Freedom of a Dynamic System?
4. Define d'Alembert's Principle.
5. Distinguish between Free and Forced vibration.
6. What is meant by response?
7. What do you meant by seismogram?
8. What is called as response reduction factor?
9. Define the term ductility.
10. What is strong column and weak beam concept?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the different types and sources of dynamic loads in detail.

Or

(b) The vibration system consisting of a weight of 80 N. A spring with stiffness 3,100 N/m is viscously damped so that the ratio of two successive amplitudes is 1:0.75. Determine

(i) The natural frequency of undamped sustem (8)

(ii) Logarithmic decrement. (8)

12. (a) Explain single degree undamped and damped system with sketches.

Or

(b) Explain the Principle of accelerometers and displacement meters in detail.

13. (a) (i) Write in detail about the Critical damping and Damped circular frequency. (8)

(ii) Describe the theory of Vibrations. (8)

Or

(b) Explain free Vibration analysis of MDOF system.

14. (a) What is meant by the focus and epicenter of an earthquake? Name the two kinds of body waves and explain how they differ.

Or

(b) What are the various earthquake recording instruments? Explain.

15. (a) What are the measures taken to reduce the possibility of liquefaction?

Or

(b) Describe in detail about the ductile detailing of RC flexure members as per IS 13920-1993.
