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

Question Paper Code : 11291 07/05/19

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019. FN & AN

Third Semester

Structural Engineering

ST 5301 — EARTHQUAKE ANALYSIS AND DESIGN OF STRUCTURES

(Regulation 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the types of faults.
2. Compare and contrast focus and epicentre.
3. Outline D-Alembert's principle.
4. Discuss the types of damping.
5. Illustrate strengthening of masonry wall.
6. Brief about Killari earthquake.
7. Define ductility.
8. How mass irregularities differ from plane irregularities?
9. Why is base isolation effective?
10. Generalize the practical application of dampers.

PART B — (5 × 13 = 65 marks)

11. (a) Define Richter scale and MIMI scale and explain them briefly. (13)

Or

(b) (i) Explain the types of geological faults. (7)

(ii) Discuss about the classification of earthquakes. (6)

12. (a) Write the plan configuration problems that affect the performance of RC buildings during earthquake. (13)

Or

(b) Discuss the mathematical modeling of an SDOF system. (13)

13. (a) Brief about the behaviour of infill walls. (13)

Or

(b) Write the effects of earthquake on prestressed and steel buildings when compared to masonry buildings. (13)

14. (a) Discuss capacity based design of an RC structure. (13)

Or

(b) Explain the principles of earthquake resistant design of RC members. (13)

15. (a) Describe in detail about the concept of base isolation. (13)

Or

(b) Distinguish between metallic dampers and friction dampers. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Write the design procedure of a shear wall. (15)

Or

(b) Analyse the application of tuned mass damper in a high rise residential building. (15)

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