Roll No. | | | | | | | | | | | | |

Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(SE) (E-II) (Sem.–2)

ADVANCED STRUCTURAL DESIGN AND DETAILING

Subject Code : CE-514

Paper ID : [E0856]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

Q1 Determine the frequency and design seismic coefficient for an ordinary masonry shear wall in a school building at Allahabad, for the following data :

Roof load P = 15kN/m

Height of the wall h = 3.0 m

Width of wall b = 0.2 m

Unit weight of wall w = 19.2kN/m^2

Soil is medium

Q2 a) State the reasons for the poor performance of masonry buildings in seismic areas.

b) Strong bricks and weak mortar are recommended for masonry buildings. Why?

Q3 Enumerate the effect of ductile detailing and explain the factors affecting the ductility of structures in detail. Explain the ductile detailing of beam as per IS 13920-1993.

Q4 Discuss in detail the advantage of horizontal bands and vertical reinforcement in the masonry buildings as per IS 13828:1993.

Q5 Explain various techniques for retrofitting of RC buildings. Explain jacketing of beams and columns with illustrative sketches.

Q6 Write short notes on :

a) Ductility.

b) Classification of Shear walls.

c) Seismic strengthening.

d) Horizontal bands and vertical reinforcement in masonry buildings.

Q7 What are the principles of earthquake resistant design of RC buildings?

Q8 Describe with the help of neat sketches, restoration and strengthening of RC beams and columns.