SP-165

Total No. of Pages : 2

Seat No.	

Third year B.Tech. (Civil Engineering) (Semester - VII) (CBCS) Examination, December - 2023

EARTHQUAKE ENGINEERING

Sub. Code : 83733

9414

Day and Date : Friday, 01 - 12 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 1.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Assume suitable data if necessary and state them clearly.**
3) **Answer shall be supported by adequate sketches.**
4) **Use of IS 1893 - 2016 - (Part - I) allowed.**

9414

SECTION - I

Q1) Write note on. **[7]**

a) Magnitude

b) Intensity of an earthquake.

Q2) a) Derive the equation of motion and its solution for forced damped vibration system. **[7]**

b) Derive an equation for single degree undamped vibration system. **[7]**

9414

Q3) Calculate base shear for RC framed office building Pune with following data (a) No. of storeys = 4 (b) No. of bay in x & y direction = 4 (c) floor height = 3.0 m (d) Width of each bay in x & y direction = 8m (e) size of column: 300mm × 400mm (f) size of beam: 300mm × 400mm (g) LL = 4 kN/m^2 (i) Thickness of slab = 120 mm (h) wall is of 150mm thick all around (assume Medium soil). Write all your assumptions & clauses of IS 1893(2016). **[14]**

P.T.O.

SECTION - II

Q4) a) Explain various irregularities found in the civil Engineering structures from earthquake point of view. **[6]**

b) Explain in brief principles of earthquake resistant design of RCC member? **[6]**

Q5) a) Draw the detailed sketch of Different ways of beam and column jacketing. **[6]**

b) Write a brief note on strengthening of masonry walls. **[6]**

Q6) a) Explain in brief **[6]**

i) Viscous elastic dampers

ii) Viscous fluid dampers

b) Explain TMD with its working principle? **[5]**

9414