Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Programme Name: M.Tech. Structural Engineering **Semester : II**
Course Name : Seismic Design of Structures **Time : 03 hrs**
Course Code : CIVL 7013 **Max. Marks : 100**
Nos. of page(s) : 1
Instructions: **Answer all questions of Section A, B & C**
IS 1893, IS 456, IS 13920, SP 16 Should be allowed or Provided

SECTION A

S. No.		Marks	CO
Q 1	Define faults. Also show how they are associated with earthquake.	**4**	**CO1**
Q 2	Define response spectra.	**4**	**CO1**
Q 3	Justify, how you will evaluate the distribution of design base shear along the height of the building.	**4**	**CO1**
Q 4	Explain the importance of orientation of building in earthquake resistant design	**4**	**CO1**
Q 5	Compose the principle for the design of infill walls.	**4**	**CO1**
	SECTION B		
Q 6	Specify the methods for strengthening of masonry buildings	**10**	**CO4**
Q 7	A 20m span long bridge is severly damaged due to an earthquake of magnitude 8 and need to retrofit urgently. Kindly provide the retrofitting solution.	**10**	**CO4**
Q 8	Design Beam for the frame discussed in Q 10.	**10**	**CO2**
Q 9	Design Column for the frame discussed in Q 10.	**10**	**CO2**
	SECTION-C		
Q 10	A special reinforced concrete moment resisting frame building with infill panels is situated in Delhi. The height and base dimension is 12m and 24m. Evaluate the design, horizontal seismic coefficient and vertical seismic coefficient for a damping ratio of 2 %.	**20**	**CO2**
Q 11	Explain about the design procedure of shear wall in detail with suitable example.	**20**	**CO3**