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Paper Code : CE(OE)802B Earthquake Engineering

UPID : 008321

Time Allotted : 3 Hours

Full Marks :70

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :

[1 x 10 = 10]

- (I) Along the boundaries of tectonic plates the earthquake occurs is called _____.
- (II) The maximum acceleration that is experienced by the ground during shaking is called _____.
- (III) When there is a constant amplitude over every cycle of vibration, then the body is said to have _____.
- (IV) _____ is known as hypocenter.
- (V) Earthquakes are most frequent in _____ zone
- (VI) Shallow earthquakes, less than 20 km deep, are associated with _____.
- (VII) To measure the magnitude of earthquake is used _____.
- (VIII) The seismic code which is used in Indian Standard guidelines for repair and seismic strengthening of buildings is _____.
- (IX) Two springs have spring stiffness of 1500 N/m and 2000 N/m respectively. If they are connected in series, what is the spring stiffness of an equivalent system?
- (X) Generally in which portion of tectonic plates earthquake occurs?
- (XI) The first formal seismic code in India is _____.
- (XII) The ratio of the maximum displacement of the forced vibration to the deflection due to the static force, is known as _____.

Group-B (Short Answer Type Question)

Answer any three of the following :

[5 x 3 = 15]

2. Write a short notes on Review of Indian Code IS 1893 (1984) [5]
3. Explain the structural protective systems? [5]
4. Define lateral load analysis of building system. [5]
5. Explain two cases of design horizontal earthquake load. [5]
6. Write down the steps to improve Global level Ductility? [5]

Group-C (Long Answer Type Question)

Answer any three of the following :

[15 x 3 = 45]

7. (a) Explain seismic waves broadly. [8]
(b) Explain earthquake intensity. [7]
8. (a) Write a brief explanation about Pseudo-dynamic test. [7]
(b) Explain briefly Quasi-static test. [8]
9. (a) Briefly explain code based procedure for seismic analysis. [8]
(b) Explain seismic design methods. [7]
10. Explain briefly the failure mechanism of infilled frame. [15]
11. Short notes on crust and upper mantle. [15]

*** END OF PAPER ***