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Total No. of Questions: 09   Total No. of Pages: 02

B. Tech. (CE) (Sem. 6)
ELEMENTS OF EARTHQUAKE ENGINEERING
Subject Code: BTCE-602
Paper ID: A2289

Time: 3 Hrs.   Max. Marks: 60

INSTRUCTION TO CANDIDATES:
1. **Section A is COMPULSORY consisting of TEN Questions carrying TWO marks each.**
2. **Section B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **Section C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION A

1.

(a)   Differentiate between Design basis earthquake and Maximum considered earthquake.

(b)   What are the various types of damping?

(c)   Draw mathematical model for any two structural system.

(d)   Give two virtue of good earthquake resistant design.

(e)   Define centre of mass and rigidity.

(f)   Differentiate between epicentre and hypocentre.

(g)   What are non-engineered constructions?

(h)   Differentiate between magnitude and intensity of an earthquake.

(i)   Give the expression used for distributing lateral force along the height of building.

(j)   What is shear wall?

SECTION B

2.   Explain Tectonic plate theory, enumerate 7 major Tectonic plates.

3.   What are the principal causes of damages of RC buildings? How will you identify them?

4.   Define logarithmic decrement. Derive a formula to calculate it.

5.   Define diaphragms and classify them on the basis of flexibility.

6.   Write a short note on seismic design philosophy.

SECTION C

7. What do you understand by degree of freedom? Derive the expression for free vibrations of undamped systems having SDOF; with suitable diagram.

8. Discuss the general principles involved in earthquake resistant designing of structure.

9. What is the necessity of ductile detailing? Explain with neat sketches the detailing for flexural members as per IS-13920.