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Question Paper Code	11775

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Eighth Semester

Civil Engineering

CE8021 – STRUCTURAL DYNAMICS AND EARTHQUAKE ENGINEERING

(Regulations 2017)

(Use of IS 1893 -2002(Part 1), IS 13920-2008 Code books are permitted)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	List the types of vibration.	2,K1,CO1
2.	Recall critical damping.	2,K1,CO1
3.	Define Natural frequencies.	2,K1,CO2
4.	Tell about Damped MDOF systems.	2,K1,CO2
5.	Infer the Seismograph.	2,K1,CO3
6.	Discuss about the Focal length.	2,K2,CO3
7.	Enumerate the Response spectra.	2,K2,CO4
8.	Observe the Pinching effect.	2,K2,CO4
9.	List the Causes of damage.	2,K2,CO5
10.	Memorize the Lateral load analysis.	2,K2,CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Derive the equation of motion for SDOF system damped free vibration.	13,K2,CO1
		OR	
	b)	A mass of 1kg is suspended by a spring having a stiffness of 600N/m. the mass is displaced from equilibrium position by a distance of 0.01m. Find i) Equation of motion of system, ii) Natural frequency of the system and iii) Response of the system as function of time.	13,K2,CO1
12.	a)	Categorize in detail about the free vibration of undamped system.	13,K2,CO2
		OR	

b) Derive the equation of motion of a two degree of freedom system for free vibration. *13,K2,CO2*

13. a) What are seismic waves? Explain the types of seismic waves with neat sketches. *13,K2,CO3*

OR

b) Examine the elastic rebound theory with neat sketch. *13,K2,CO3*

14. a) Construct in detail about lessons learnt from past earthquakes. *13,K2,CO4*

OR

b) Schedule the different methods of introducing ductility into the RC structure. *13,K2,CO4*

15. a) Conclude the various guidelines on earthquake resistant buildings. *13,K2,CO5*

OR

b) Appraise the base isolation techniques. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Discuss the types of plan irregularities and vertical irregularities of building with neat sketches. *15,K2,CO6*

OR

b) Classify any four methods to reduce liquefaction. *15,K2,CO6*