Sanjay Ghodawat University, Kolhapur

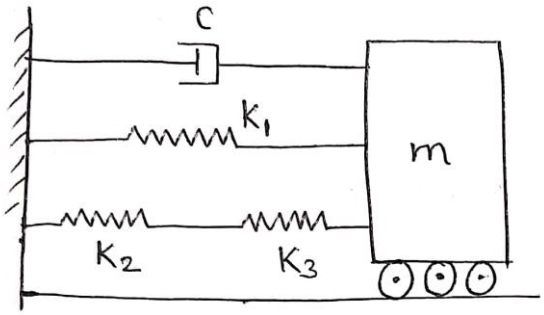
2020-21

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/00

Year and Program: 2020-21 TYB.Tech.	**School of Technology**	**Department: Mechanical Engg.**
Course Code: MET 3081	**Course Title: Mechanical Vibrations**	**Semester : VI**
Day and Date:	**End Semester Examination**	**Time:2 Hrs. Max Marks:50**

Instructions: 1) All Questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Answer/Solve the following (any Two)**			
a)	Calculate the natural frequency and damping ratio for the system in Figure 1.1. given the values m = 10 kg, c = 100 kg/s, k_1 = 4000 N/m, k_2 = 200 N/m and k_3 =1000 N/m. Assume that no friction acts on the rollers. Is the system overdamped, critically damped or underdamped?	8	L1	308.1.1
	 Fig. 1.1			
b)	A spring-mass-damper system has mass of 150 kg, stiffness of 1500 N/m and damping coefficient of 200 kg/s. Calculate the undamped natural frequency, the damping ratio and the damped natural frequency. Is the system overdamped, underdamped or critically damped?	8	L1	308.1.2
c)	Explain different types of vibrations in detail.	8	L1	308.1.1
Q.2	**Answer/Solve the following (any two)**			
a)	Determine the frequency of the system shown in fig.2.1. Given $k_1=k_2$= 40N/m, k=60N/m, $m_1=m_2$= 10Kg.	8	L3	308.1.3

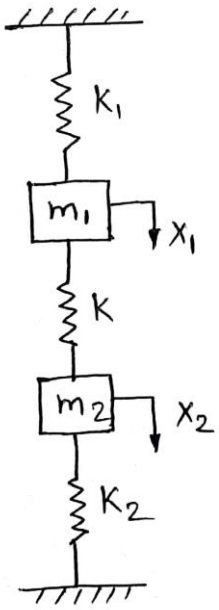


Fig. 2.1

	b)	Explain Holzer method in detail.	8	L2	308.1.4
	c)	What is vibration absorber? Explain with suitable example.	8	L2	308.1.3
Q.3		**Answer/Solve the following (any two)**			
	a)	What is decibel scale? What is its importance? Explain with suitable example	9	L2	308.1.6
	b)	Explain use of FFT Analyzer in vibration measurement.	9	L2	308.1.5
	c)	Explain different types of exciters.	9	L2	308.1.5

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