

**NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR****Even Semester Mid-term Examination, 2022-23****Course Code:**CEO440

Full Marks: 25

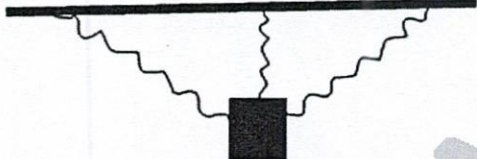
**Course Name:**Introduction to Earthquake Engg.

Time: 90 Minutes

Question Paper No.:-----

Instructions: Answer ALL

Materials to be supplied: Graph paper shall be supplied, if required.

Question No.	Body of the Question	Marks	Mapped CO
1	<p>Write the free downward vibration differential equation for the spring-mass system shown in the figure below, with equal 'k'. Two springs making equal angle '<math>\alpha</math>' with the horizontal and one vertical. Take mass of the block 'M'. Hence, find the natural frequency of the vibratory system.</p> 	7.5	CO1
2	What is soft storey building? Write its remedial measure.	7.5	CO2
3	<p>Write short note (any two)</p> <ol style="list-style-type: none"> <li>Earthquake Intensity and magnitude</li> <li>Pangaea and Plate tectonics</li> <li>Locating Earthquake epicenter</li> </ol>	10	CO3

**Course Outcomes**

CO1: APPLYING ENGG. MATHEMATICS IN SOLVING VIBRATION PROBLEM

CO2: ABILITY TO DESIGN A BUILDING EARTHQUAKE RESISTANT

CO3: LEARN BASIC OF EARTHQUAKE ENGINEERING

CO4: ABILITY TO MANAGE DISASTER