

## School of Engineering

M.Tech Structural Engineering  
Semester End Examination - Jun 2024

Duration : 180 Minutes  
Max Marks : 100

### Sem II - G1PC206T - Earthquake resistance design

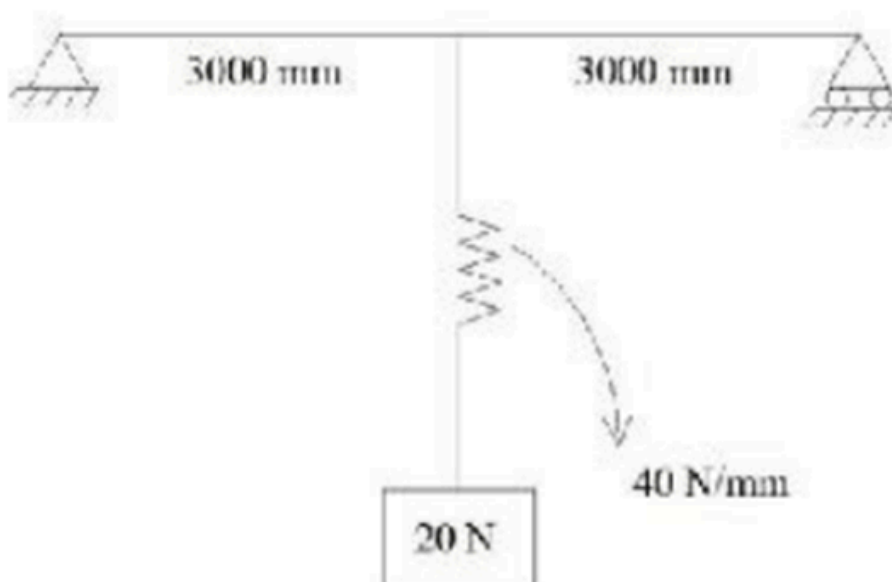
General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

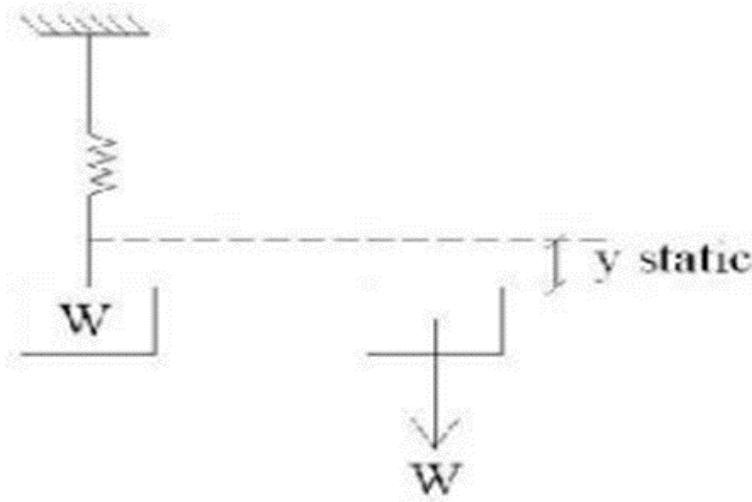
Approved data hand books are allowed subject to verification by the Invigilator

- 1) Name two primary seismic forces acting on multistoreyed buildings. K1(2)
- 2) What is meant by coupled and decoupling of equation? K2(4)
- 3) Compare and contrast the seismic design considerations for regular and irregular multistoreyed buildings. K2(6)
- 4) Write a step by step procedure to analyze a frame by equivalent dynamic lateral load method. K3(9)
- 5) Formulate the expression for time period as per codal provision IS 1893:2002 K3(9)
- 6) Design the special confining reinforcement for the size of column 650mm x 500mm. Let the grade of concrete be M20 and that of steel Fe415 K5(10)
- 7) List the steps involved in evaluation of structures and explain K4(12)
- 8) Find the natural frequency of the system shown. The mass of the beam is negligible in comparison to the suspended mass.  $E=2.1 \times 10^5 \text{ N/mm}^2$  . K5(15)



- 9) Weight of 15 N is vertically suspended by a spring of stiffness  $k=2$  N/mm. Determine natural frequency of free vibration of weight.

K5(15)



- 10) Explain with example about Response spectrum method .

K6(18)