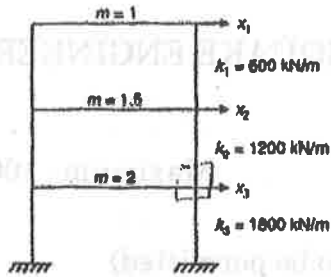






- b) A single degree of freedom system having a mass of  $2.5 \text{ m}$  is set into motion with a viscous damping and allowed to oscillate freely. The frequency of oscillation is found to be  $20 \text{ Hz}$ , and measure of the amplitude of vibration shows two successive amplitude to be  $6 \text{ mm}$  and  $5.5 \text{ mm}$ . Estimate the viscous damping co-efficient.

12. a) Evaluate the natural frequency and draw the mode shape for the shear building.



(OR)

- b) Derive the equation of motion of a two degree of freedom system for free vibration.

13. a) List out the causes of earthquake and explain it briefly.

(OR)

- b) Define focus and epicenter of an earthquake. Define surface and body waves and explain it with neat sketch.

14. a) Explain briefly the effect of earthquake on different types of structures.

(OR)

- b) Discuss in detail about the methods of seismic analysis.

15. a) Write down the various earthquake resistant features that can be introduced in masonry building to make it earthquake resistant.

(OR)

- b) Why ductility consideration is very important in earthquake resistant design of RC building? Explain the ductile detailing considerations in flexural members as per IS 13920-1993.