

- 4 (a) Explain what is meant by the *natural frequency of vibration* of a system.

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.....[1]

- (b) A block of metal is fixed to one end of a vertical spring. The other end of the spring is attached to an oscillator, as shown in Fig. 4.1.

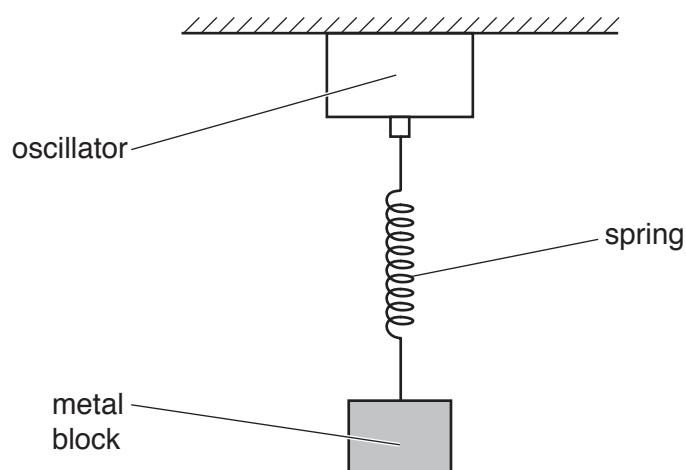


Fig. 4.1

The amplitude of oscillation of the oscillator is constant.

The variation of the amplitude x_0 of the oscillations of the block with frequency f of the oscillations is shown in Fig. 4.2.

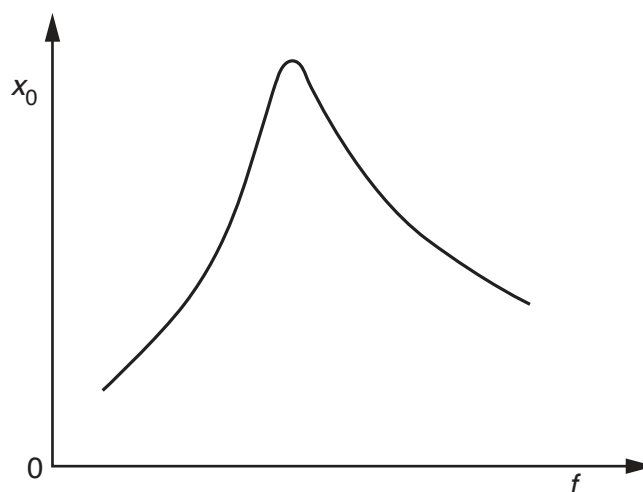


Fig. 4.2

(i) Name the effect shown in Fig. 4.2.

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(ii) State and explain whether the block is undergoing damped oscillations.

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(c) State **one** example in which the effect shown in Fig. 4.2 is useful.

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[Total: 5]

