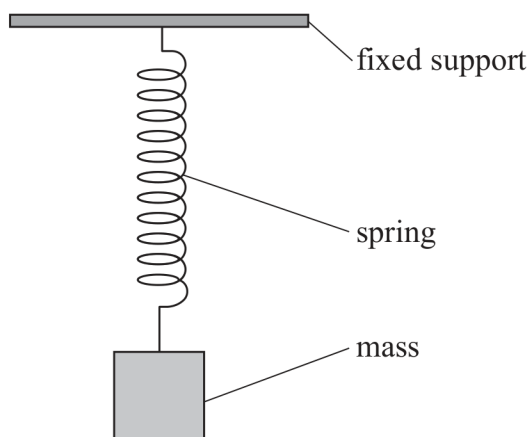**20** A 150 g mass was hung from a spring as shown. The spring extended by 7.5 cm.

The mass was displaced vertically 3.0 cm from its equilibrium position and then released. The mass oscillated vertically.

(a) Explain why the motion of the mass was simple harmonic motion.

(2)

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(b) Calculate the maximum velocity of the oscillating mass.

(6)

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Maximum velocity of mass = ...

(c) Explain why the maximum velocity of the oscillating mass decreased over time.

(2)

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(Total for Question 20 = 10 marks)