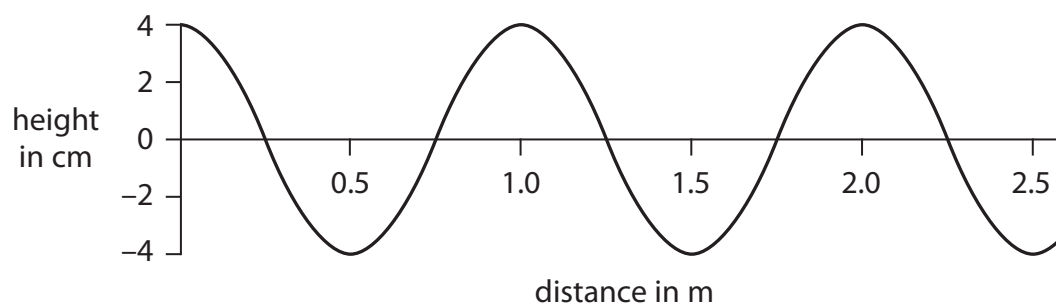


**Answer ALL questions.**

1 This question is about waves.

(a) The diagram represents a water wave at an instant in time.



(i) What is the wavelength of the water wave?

(1)

- ☐ A 0.5 m
- ☐ B 1.0 m
- ☐ C 1.5 m
- ☐ D 2.0 m

(ii) What is the amplitude of the water wave?

(1)

- ☐ A 1 cm
- ☐ B 2 cm
- ☐ C 4 cm
- ☐ D 8 cm



(b) Describe the differences between transverse and longitudinal waves.

You may draw a diagram to help your answer.

(3)

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(c) All electromagnetic waves are transverse.

State two other properties that are the same for all electromagnetic waves.

(2)

1 .....

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2 .....

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(d) Some types of wave are used in hospitals.

(i) Which type of wave is used in radiotherapy to treat cancer?

(1)

- ☐ A gamma rays
- ☐ B infrared
- ☐ C microwave
- ☐ D radio waves

(ii) Endoscopes use optical fibres to see inside the body.

Which type of wave should be used in the optical fibres?

(1)

- ☐ A microwave
- ☐ B radio waves
- ☐ C ultraviolet
- ☐ D visible light

(iii) X-rays are used to obtain images of broken bones.

Explain why technicians leave the room before taking an x-ray of a patient.

(2)

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**(Total for Question 1 = 11 marks)**

