Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : Waves

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Name of the Student:_____
Max. Marks : 23 Marks **Time : 23 Minutes**

Q1.

A radio station transmits on 97.4 MHz.

To receive the waves an aerial needs a length equal to half the wavelength of the radio waves being transmitted.

Calculate the length of the aerial needed.

The speed of the radio waves is 3.00×10^8 m / s.

(3)

length of aerial = ... m

(Total for question = 3 marks)

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Q2.

A different water wave has a wavelength of 0.25 m and a frequency of 1.5 Hz.

Calculate the wave speed.

(2)

wave speed = ... m/s

(Total for question = 2 marks)

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Q3.

Figure 1 shows part of a wave.

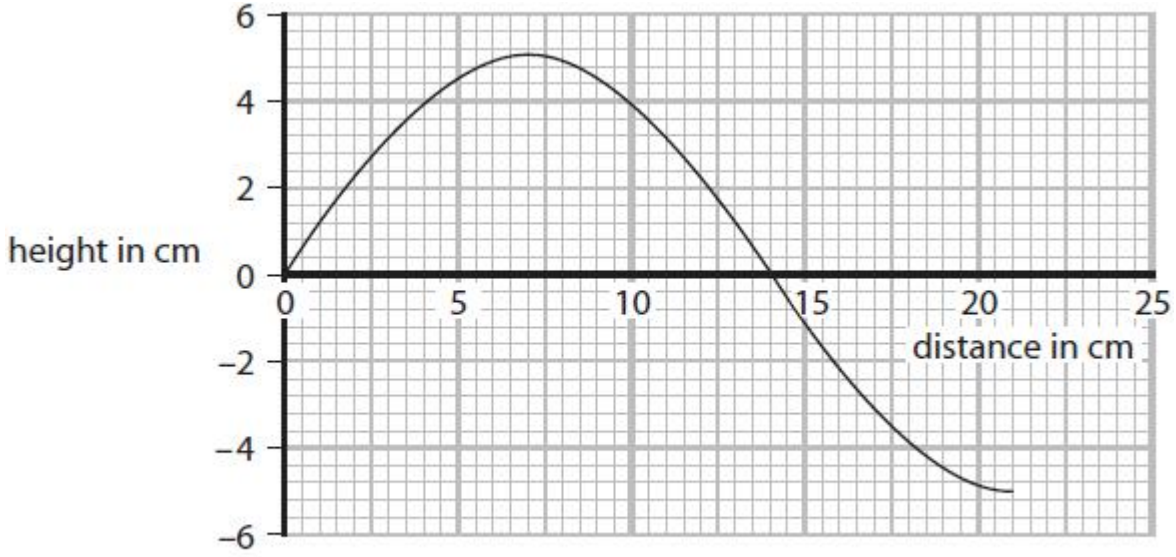


Figure 1

Use data from Figure 1 to calculate the wavelength of the wave.

(2)

wavelength = ... cm

(Total for question = 2 marks)

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Q4.

This question is about waves in the electromagnetic (e.m.) spectrum.

(i) A microwave oven uses waves of frequency 2.45 GHz.

Calculate the wavelength of the microwaves.
The velocity of light is 3.00×10^8 m/s.

(3)

wavelength = ... m

(ii) The microwave oven is 55% efficient and transfers 42 000 J of energy to some food when it is heated.

Calculate the total amount of energy that must be supplied to the oven.

(3)

energy supplied to oven = ... J

(Total for question = 6 marks)

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Q5.

A sound wave travels with a velocity of 1530 m/s.
The frequency of the wave is 1.20 kHz.
Calculate the wavelength of the wave.

(3)

wavelength = ... m

(Total for question = 3 marks)

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Q6.

This question is about different types of electromagnetic radiation.

The human eye can detect a range of wavelengths, from violet at about 400 nm to red at about 700 nm. Figure 8 shows the relative sensitivity of the human eye to different wavelengths when inside a dark cave.

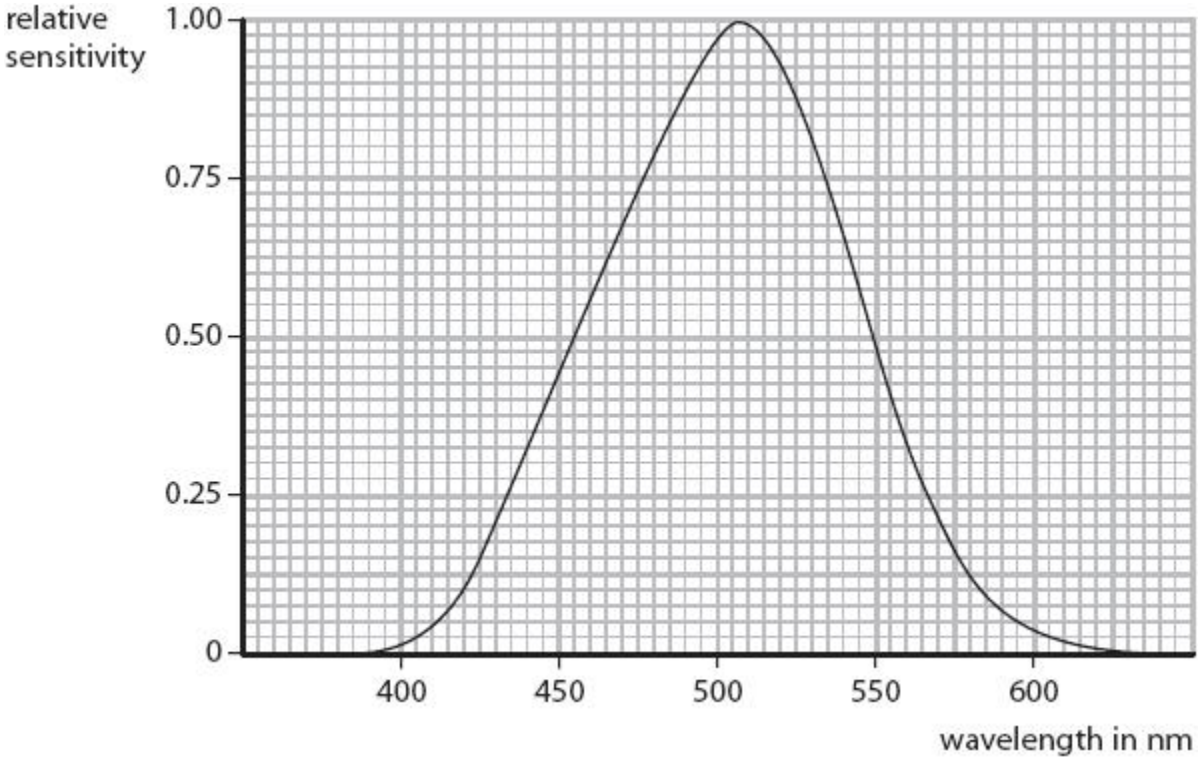


Figure 8

(i) Use the information in Figure 8 to determine the wavelength to which the eye is most sensitive inside the cave.

(1)

wavelength = ... nm

(ii) Calculate the frequency to which this wavelength corresponds. Give the unit.

The speed of light in air = 3.0×10^8 m/s.

(3)

frequency = ... unit .....

(iii) Using information from Figure 8, describe how well the eye detects different colours of the visible spectrum inside the cave.

(3)

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(Total for question = 7 marks)

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