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

Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Q1.

Sound waves travel at 330 m/s in air.

A student sees a flash of lightning.

The student hears the sound of thunder 4.0 s later.

Calculate the distance from the student to the flash of lightning.

Use the equation

$$x = v \times t$$

(2)

distance = ... m

(Total for question = 2 marks)

Q2.

In a swimming pool, a wave is produced with a wavelength of 4.0 m and a velocity of 0.8 m / s.

Calculate the frequency of the wave.

State the unit of frequency.

(3)

Use the equation

$$v = f \times \lambda$$

frequency of wave ..... unit .....

(Total for question = 3 marks)

Q3.

The speed of a sound wave in air is 330 m/s.

The wavelength of this wave is 0.75 m.

Calculate the frequency of this wave.

Use the equation

$v = f \times \lambda$

(3)

frequency = ... Hz

(Total for question = 3 marks)

Q4.

The speed of sound in air is 300 m/s.

The speed of sound in water is 1500 m/s.

Calculate the ratio of the speed of sound in air to the speed of sound in water.

(2)

ratio of speed of sound in air to the speed of sound in water = ...

(Total for question = 2 marks)

Q5.

Blue light has a wavelength of 470 nm and a frequency of 6.30×10^{14} Hz

Calculate the velocity of blue light.

(2)

velocity = ... m/s

(Total for question = 2 marks)

Q6.

A 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)

Q7.

Figure 12 shows part of a wave.

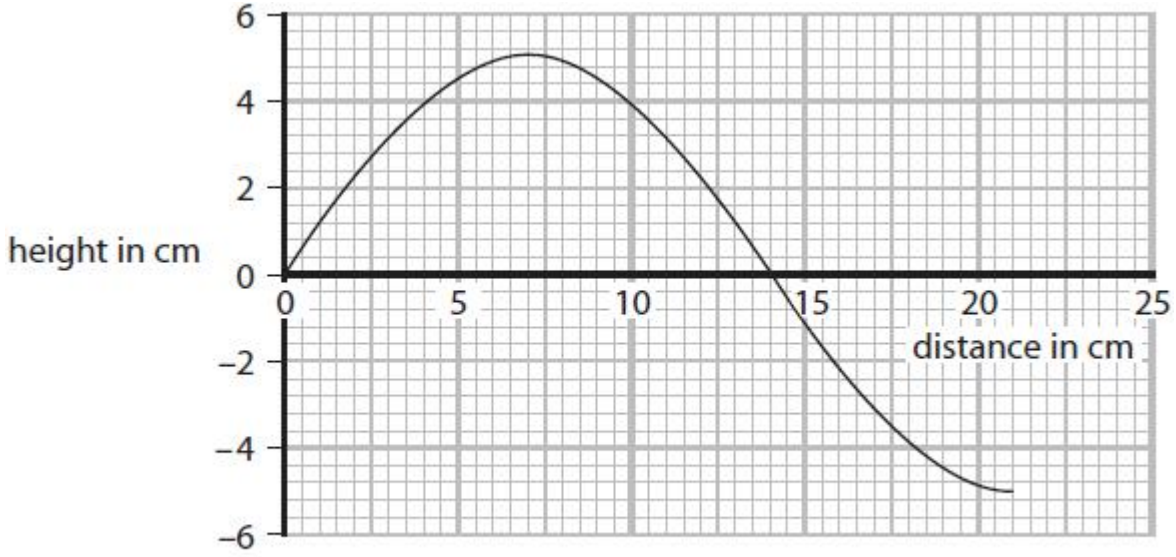

Figure 12

Use data from Figure 12 to calculate the wavelength of the wave.

(2)

wavelength = ... cm

(Total for question = 2 marks)

Q8.

A man throws a stone into a pond.

The stone makes waves that spread out in circles.

Figure 6 shows some of the waves.

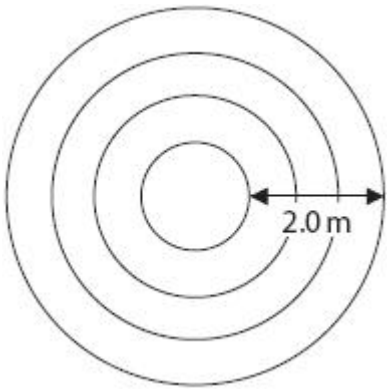

Figure 6

(i) Which of the following changes is correct as the waves spread out?

(1)

- ☒ **A** the amplitude is higher
- ☒ **B** the frequency is higher
- ☒ **C** the wavefront is longer
- ☒ **D** the period is longer

(ii) The stone hits the water 4.0 m from the bank.

The wave speed is 0.70 m/s.
Calculate the time for the wave to reach the bank.

(2)

time = ... s

(iii) The wavelength of the waves is the distance between one wavefront and the next.

Use the diagram to find the wavelength of the waves.

(1)

wavelength = ... m

(iv) There is a cork which bobs up and down in the water as the wave goes past.

Explain how this shows that the wave is transverse.

(2)

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(Total for question = 6 marks)