Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: Waves (High Demand Questions)

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

A teacher used a ripple tank to demonstrate water waves.

The teacher used a lamp to project a shadow of the water waves onto a screen below the ripple tank.

(a) The figure below represents the shadow of the water waves seen on the screen.

1.0 mm on the figure above represents 5.0 mm on the screen.

Determine an **accurate** value for the wavelength of the waves on the screen.

Give your answer in mm.

Show how you work out your answer.

_____

_____

_____

_____

_____

Wavelength = _____ mm

(3)

The teacher adjusted the frequency of the waves produced in the ripple tank.

The teacher measured the wavelength five times.

The table below shows the results.

Measurement	1	2	3	4	5	**Mean**

Wavelength in millimetres	96	99	97	**X**	97	97

(b) Calculate value **X** in the table above.

_____

_____

_____

X = _____ mm

(2)

(c) The teacher states that the results are very precise.

Which of the following supports the statement made by the teacher?

Tick (✓) **one** box.

The mean value is very close to the true value. ☐

The spread of values about the mean is very small. ☐

The values are all given to the nearest millimetre. ☐

The wavelength measurement was taken five times. ☐

(1)

(d) Describe the difference between longitudinal waves and transverse waves.

_____

_____

_____

_____

(2)

(Total 8 marks)

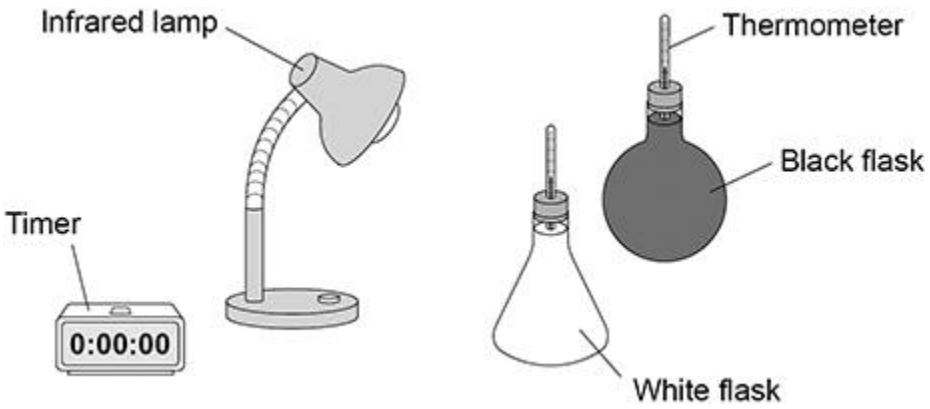
Q2.

A student investigated how the colour of a surface affects the amount of infrared radiation the surface absorbs.

Figure 1 shows the equipment used.

The two flasks are painted different colours.

Figure 1



This is the method used.

1. Pour water at 20 °C into each flask.

2. Place a bung and thermometer into each flask.

3. Place each flask in front of the infrared lamp.

4. Measure the temperature of the water every 30 seconds for 10 minutes.

(a) Explain **two** improvements to the method the student used.

1 _____

_____

_____

_____

2 _____

_____

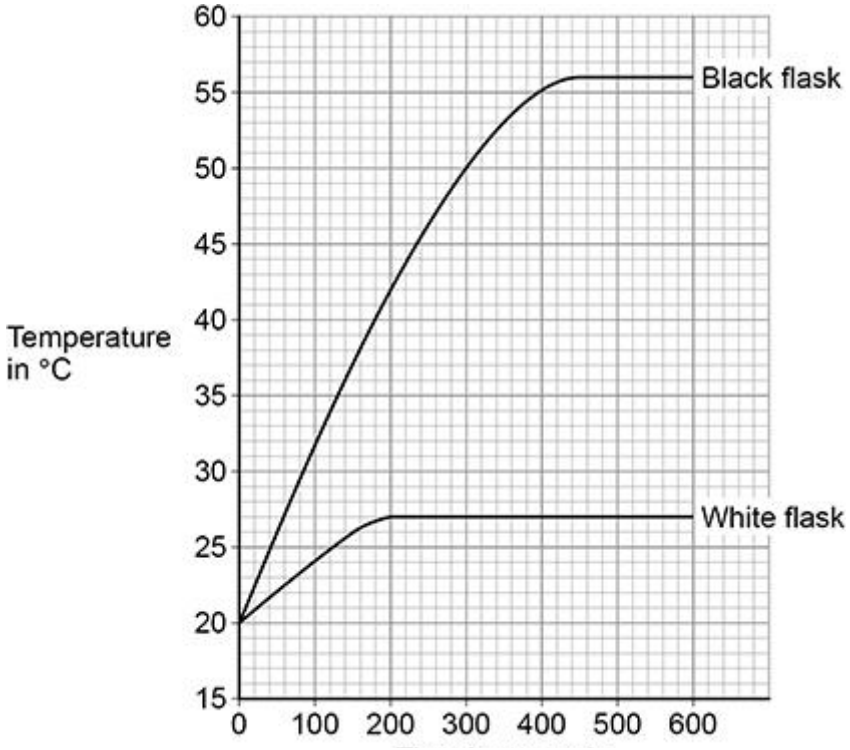
_____

_____

(4)

Figure 2 shows the results for each flask.

Figure 2



(b) Complete the sentences.

After 100 seconds the temperature difference between the black flask and the white flask was _____ °C

The temperature of the white flask stopped increasing. The temperature inside the black flask continued to increase for a further _____ seconds.

(2)

(c) The initial rate of absorption of infrared radiation by the black flask was greater than the initial rate of absorption by the white flask.

How does **Figure 2** show this?

_____

_____

(1)

(d) Explain why the temperature of the water in the flasks increased and then became constant.

_____

_____

_____

_____

_____

_____

_____

(4)
(Total 11 marks)