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

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

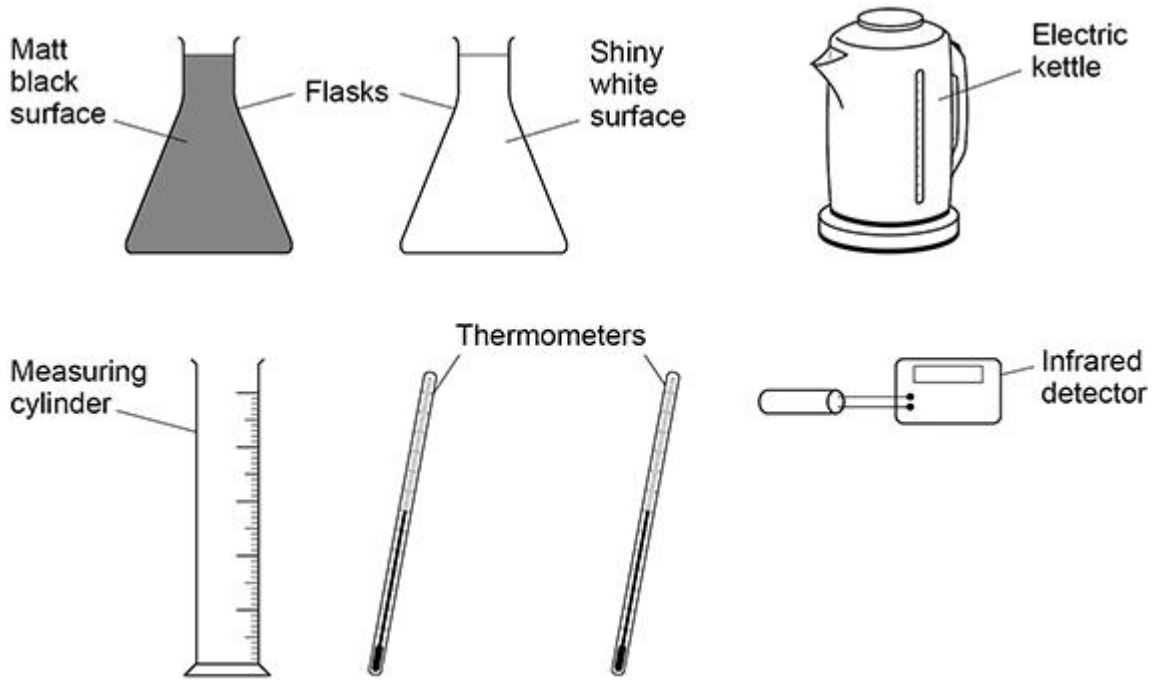
Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

A student investigated how the colour of a surface affects the power of the infrared radiation emitted by the surface.

Figure 1 shows the equipment used.

Figure 1



The infrared detector measures the power of the infrared radiation emitted by the flasks.

(a) The student poured hot water into each flask.

What should the student do to reduce the risk of burning herself with the hot water?

_____

_____

(1)

(b) Describe how the student should use the equipment in **Figure 1** to compare the power of the infrared radiation emitted by each surface.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(4)

A student investigated how the power of the infrared radiation emitted from a flask changed with time.

The table below shows the results.

Time in seconds	Power in watts
0	8.0
60	7.2
120	6.5
180	5.9
240	5.4
300	5.0
360	4.7
420	4.5

(c) Describe the pattern shown by the data in the table above.

_____

_____

_____

_____

(2)

(d) What is the most likely value for the power of the infrared radiation emitted after 480 seconds?

Use the table above.

Tick (✓) **one** box.

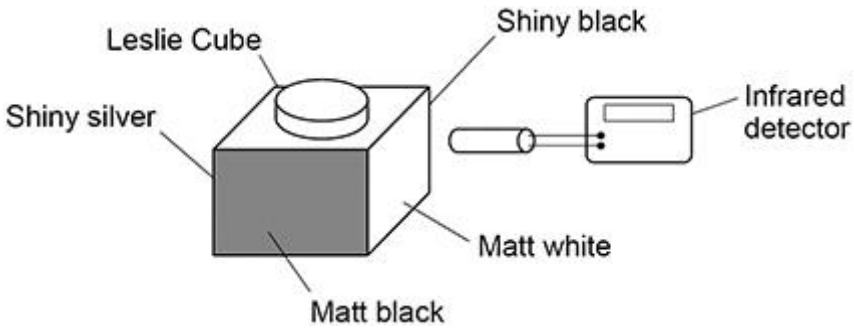
4.0 W ☐ 4.2 W ☐ 4.4 W ☐ 4.6 W ☐

(1)

A Leslie Cube is used to demonstrate that different surfaces emit different amounts of infrared radiation.

Figure 2 shows an infrared detector and a Leslie Cube filled with hot water.

Figure 2



(e) Give **one** advantage of using a Leslie Cube rather than the equipment in **Figure 1** above.

_____

_____

(1)

(f) The teacher improved the demonstration by using four infrared detectors connected to a data logger and computer. Each detector was pointed at a different surface of the Leslie Cube.

The distance between the surface and the detector was the same in each case.

Give **two** reasons why this improved the demonstration.

1 _____

_____

_____

2 _____

_____

_____

(2)

(Total 11 marks)

Q2.

X-rays and gamma rays are types of electromagnetic waves.

X-rays are used for medical imaging.

(a) Which substance will **not** absorb X-rays?

Tick (✓) **one** box.

Bone ☐ Metal ☐ Skin ☐

(1)

The table below shows the effect of exposure to different doses of radiation.

Dose in mSv	**Effect on the human body**
100	slightly increased risk of cancer
1000	5% increased risk of cancer
5000	high risk of death

(b) During one X-ray a person receives a dose of 0.100 mSv

Why is this dose unlikely to harm the person?

_____

_____

(1)

(c) A doctor takes an X-ray photograph of a person.

When taking the X-ray photograph, the doctor stands behind a screen.

Suggest why.

_____

_____

(1)

(d) Which of the following are gamma rays used for?

Tick (✓) **one** box.

Cooking food ☐

Energy-efficient lamps ☐

Sterilising medical equipment ☐

(1)

(e) Why are gamma rays and X-rays harmful to humans?

Tick (✓) **one** box.

They are ionising ☐

They are radioactive ☐

They travel at the speed of light ☐

(1)

(f) Electromagnetic waves are also used in communications.

Describe how microwaves and visible light are used in communications.

Microwaves _____

_____

_____

_____

Visible light _____

_____

_____

_____

(4)

(Total 9 marks)