Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 5_ Light And Electromagnetic Spectrum

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

Q1.

The electric motors which drive the wheels are painted black.
Suggest why the motors are painted black.

(1)

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Q2.

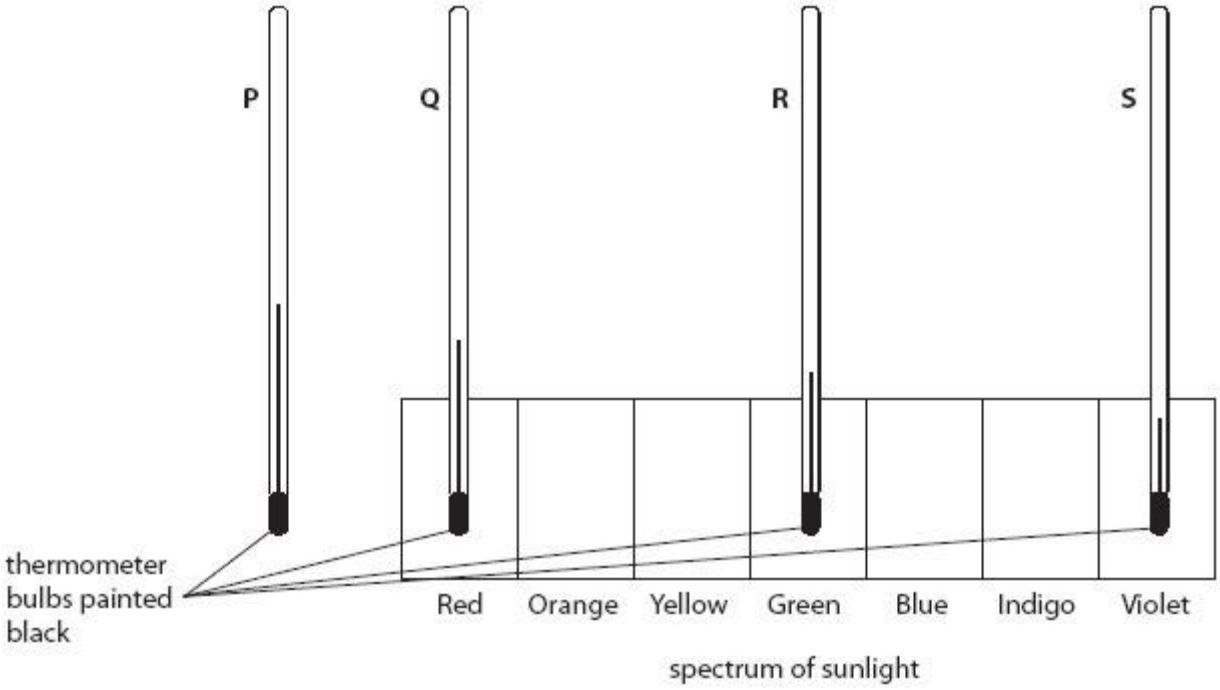
Some students repeat Herschel's experiment.

(a) They place four identical thermometers, **P**, **Q**, **R** and **S**, in the shade.
The table shows some of the readings on the thermometers in the shade.
Complete the table to show the reading on thermometer **Q**.

(1)

	thermometers in the shade			
	P	**Q**	**R**	**S**
temperature / °C	18		18	18

(b) Then the four thermometers are placed in the spectrum of sunlight as shown.



(i) The bulbs of the thermometers are painted black.

State why the bulbs of the thermometers are painted black.

(1)

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(ii) The table shows the readings on the thermometers in the spectrum of sunlight.

	thermometers in the spectrum of sunlight			
	P	**Q**	**R**	**S**
temperature / °C	25	23	21	20

Describe conclusions that can be made from the students' results.

(2)

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(iii) State why the students put the four thermometers together in the shade before placing them in the spectrum of sunlight.

(1)

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(c) Another scientist, Ritter, discovered ultraviolet radiation.

(i) Complete the sentence by putting a cross (■) in the box next to your answer.

Too much exposure to ultraviolet radiation may cause

(1)

☒ **A** deafness

☒ **B** heating of internal body cells

☒ **C** damage to the eyes

☒ **D** damage to the bone cells

(ii) Three signals, ultraviolet, visible light and infrared, are sent from the surface of the Moon to an orbiting spacecraft.

The three signals are sent at the same time.

Which of these is correct for the signals arriving at the spacecraft?

Put a cross (■) in the box next to your answer.

(1)

☒ **A** the visible light signal arrives first

☒ **B** the ultraviolet signal arrives first

☒ **C** the infrared signal arrives first

☒ **D** all three signals arrive at the same time

(iii) Describe **one** use of ultraviolet radiation.

(2)

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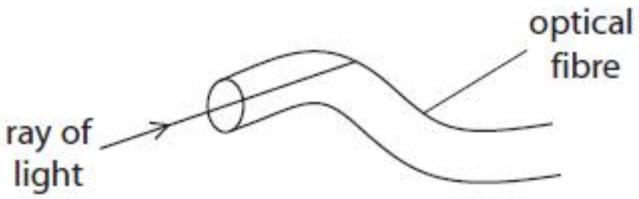
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(Total for Question is 9 marks)

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Q3.

(a) An endoscope uses glass fibres to enable doctors to 'see' inside a person.



Complete the sentence by putting a cross (☒) in the box next to your answer.
Rays of light travel along the glass fibres by

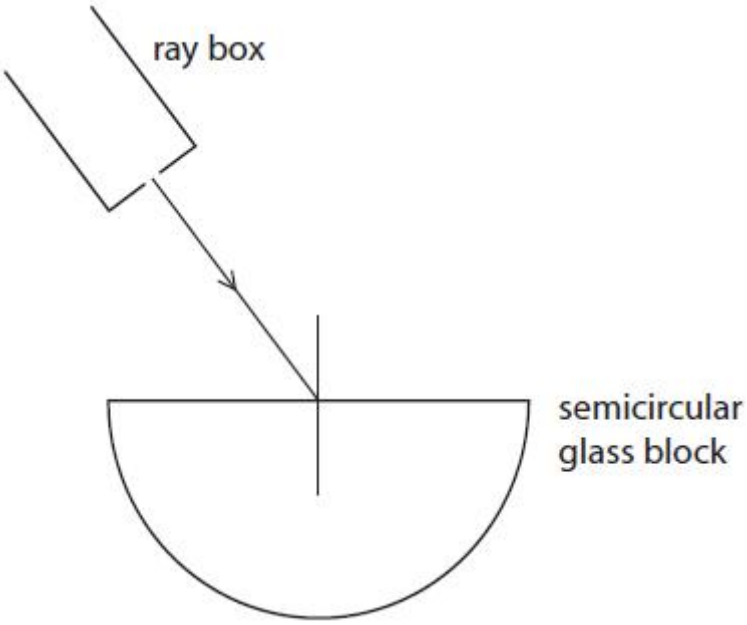
(1)

- ☒ **A** total internal correction
- ☒ **B** total internal diffraction
- ☒ **C** total internal reflection
- ☒ **D** total internal refraction

(b) The diagram shows a ray box shining a ray of light at a semicircular glass block.

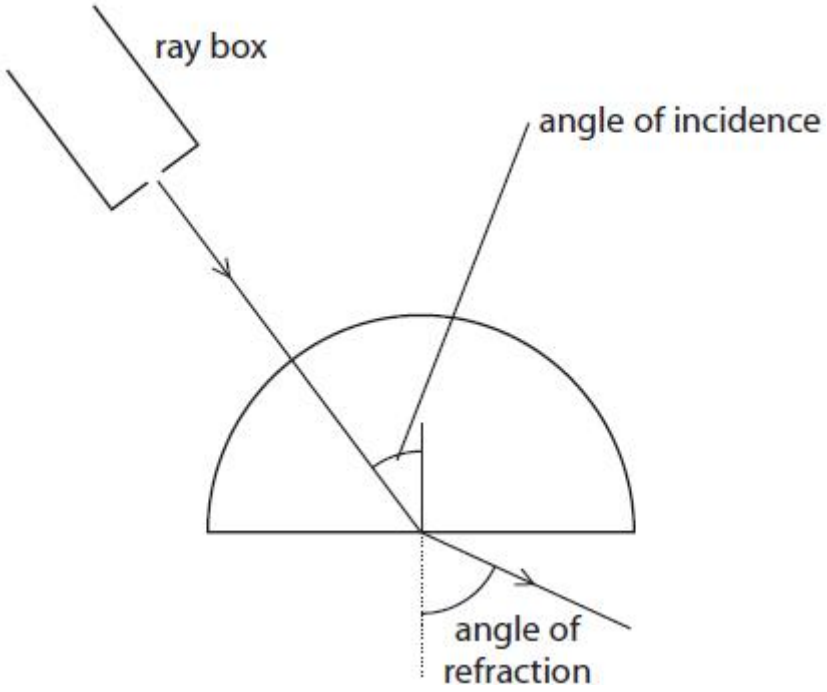
Complete the diagram to show the path of the ray of light inside the glass block.

(2)



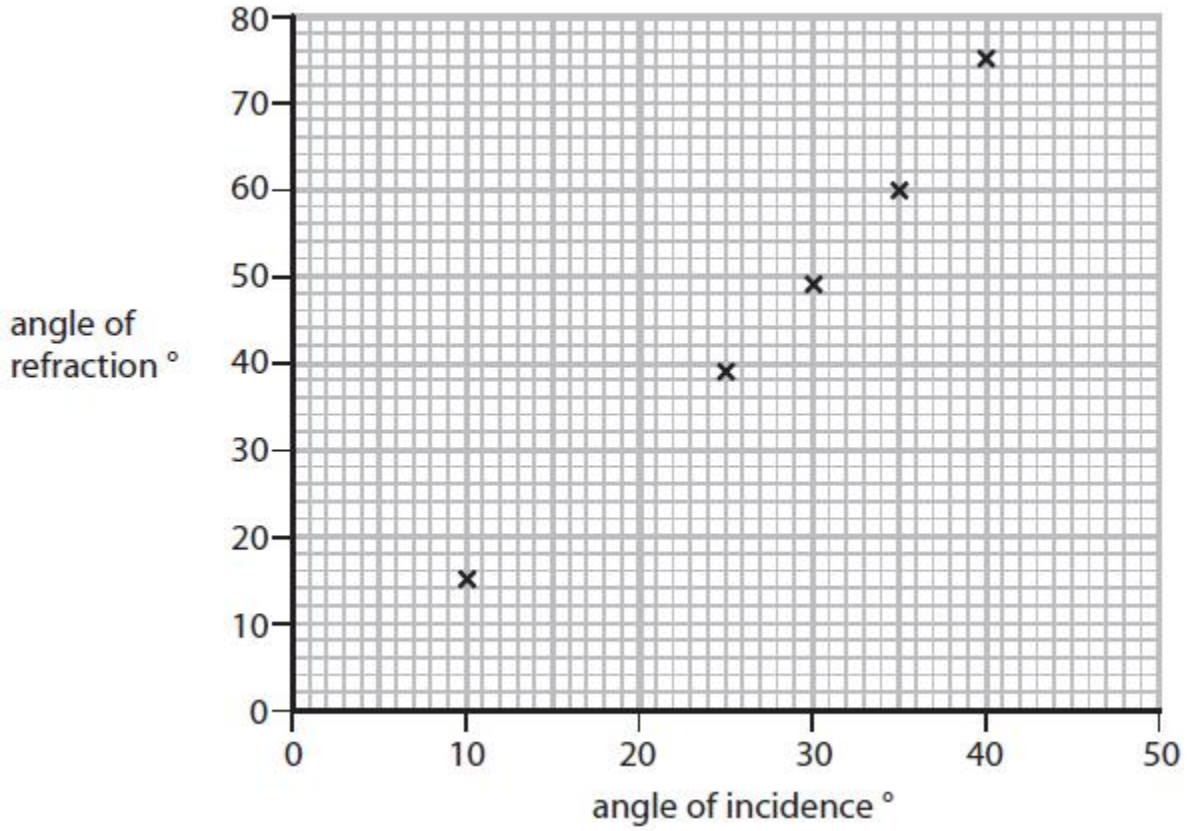
(c) A student shines a ray of light into the block as shown.

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He measures the angle of incidence inside the block as shown.
He measures the angle of refraction outside the block as shown.
He repeats these measurements for different angles of incidence.
He records his results in this table and plots a graph.

angle of incidence °	10	15	20	25	30	35	40
angle of refraction °	15	23	31	39	49	60	75



(i) Two points are highlighted in the table.

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Plot these points on the graph.

(2)

(ii) Draw the curve of best fit.

(1)

*(iii) The student continues to increase the angle of incidence until it reaches 80°.
The critical angle for this glass is 42°.
Explain what happens to the ray of light as the angle of incidence is increased from 10° to 80°.

(6)

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