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 : 20 Marks **Time : 20 Minutes**

Q1.

This question is about reflection and refraction of light.

A converging lens has a focal length of 40 cm.
Calculate the power of this lens in dioptres.
Use the equation

$$\text{power in dioptres} = \frac{1}{\text{focal length in metres}}$$

(3)

power of the lens ..... dioptres

(Total for question = 3 marks)

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Q2.

Calculate the power of a lens of focal length 17 cm.

Use the equation

$$\text{power (in dioptres)} = \frac{1}{\text{focal length (in metres)}}$$

Give the answer to 2 significant figures.

(3)

power = ... dioptres

(Total for question = 3 marks)

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Q3.

Answer the question with a cross in the box you think is correct ☒ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒ .

Figure 1 shows how the visible spectrum of white light is shown on a screen.

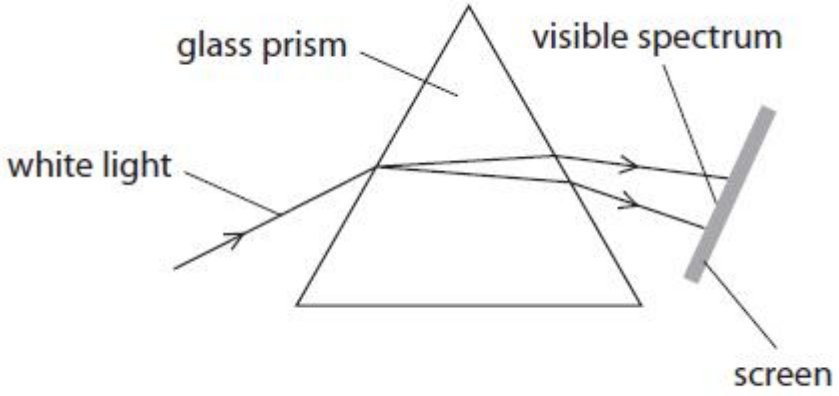


Figure 1

(i) Which of these is the best piece of equipment to produce the white light?

(1)

- ☐ **A** ray box
- ☐ **B** ruler
- ☐ **C** measuring cylinder
- ☐ **D** ammeter

(ii) Which colour is seen between yellow and blue in the spectrum on the screen?

(1)

- ☐ **A** red
- ☐ **B** orange
- ☐ **C** green
- ☐ **D** violet

(Total for question = 2 marks)

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Q4.

A student uses a ray box to investigate two lenses, P and Q.

Figure 6 shows the student's drawings of rays of light before and after passing through the lenses.

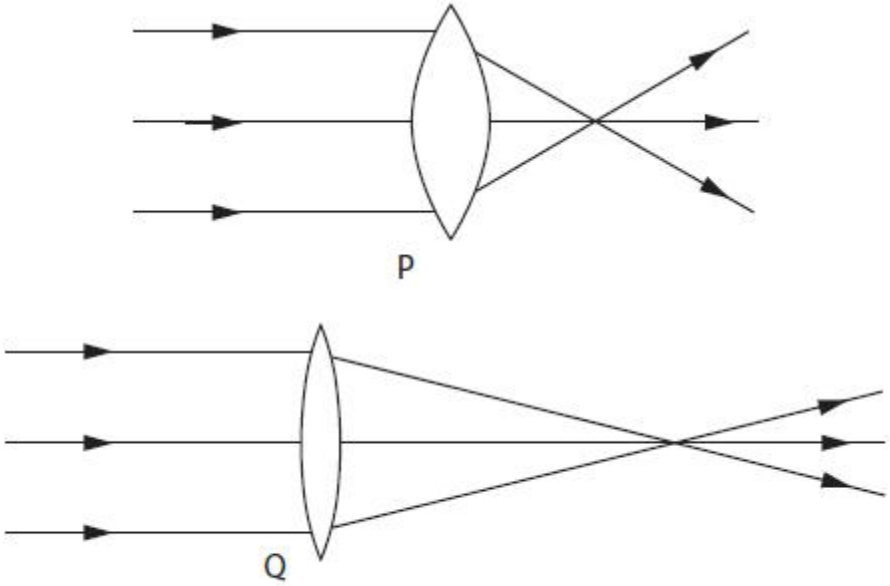


Figure 6

Complete the following sentences.

(2)

The focal length of lens P is ..... than the focal length of lens Q.

The power of lens P is ..... than the power of lens Q.

(Total for question = 2 marks)

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Q5.

Figure 2 shows the main parts of the electromagnetic spectrum.



Figure 2

Complete the following sentences using information from Figure 2. Each part of the electromagnetic spectrum may be used once, more than once or not at all.

(i) The part of the electromagnetic spectrum used to detect broken bones is

(1)

.....

(ii) The part of the electromagnetic spectrum used in thermal imaging is

(1)

.....

(iii) The part of the electromagnetic spectrum that

- is used to cook food

AND

- has a shorter wavelength than microwaves is

(1)

.....

(iv) The part of the electromagnetic spectrum that

- is used to sterilise medical equipment

AND

- has a shorter wavelength than x-rays is

(1)

.....

(Total for question = 4 marks)

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Q6.

A student uses a converging lens to produce an image of a tree on a screen.

The image of the tree on the screen is shown in Figure 5.

The student is asked to describe the image of the tree.

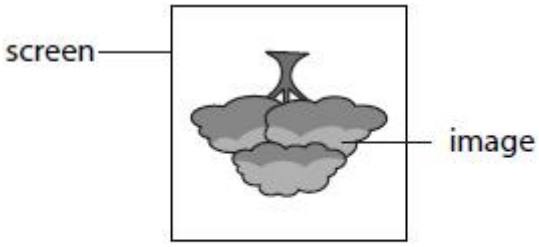


Figure 5

The student's descriptions are shown in the table.

student's descriptions of the image		correction
upside down	✓	
bigger than the actual tree	×	.....
virtual	×	.....

The first description is correct, the image is upside down.

Complete the table by adding the correct descriptions of the image.

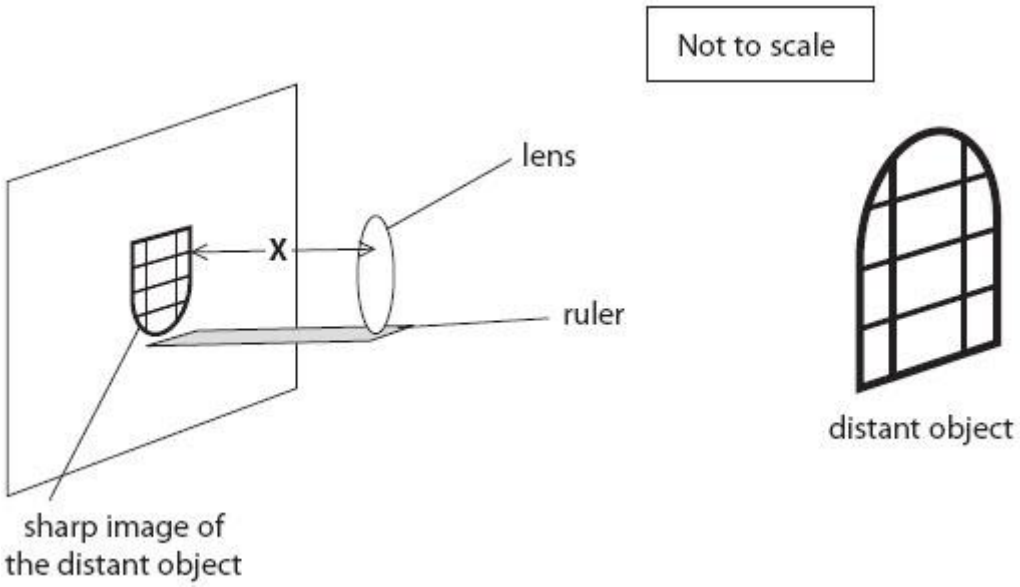
(2)

(Total for question = 2 marks)

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Q7.

Some students investigate a converging lens.
The students set up the apparatus as shown.



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

(i) The distance **X** is

(1)

- ☒ **A** the focal length
- ☒ **B** the object distance
- ☒ **C** the eyepiece distance
- ☒ **D** the magnification

(ii) Use words from the box to complete the sentences.

(2)

bigger than	diverging	real
smaller than	the same as	virtual

The size of the image is .....the distant object.
The type of image formed on the screen is a .....image.

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Q8.

Figure 12 shows two cans, a radiant heater and some other apparatus.

The cans absorb thermal radiation from the heater.

One can has a matte black surface and the other can has a shiny silver surface.

Both cans contain water at the same temperature.

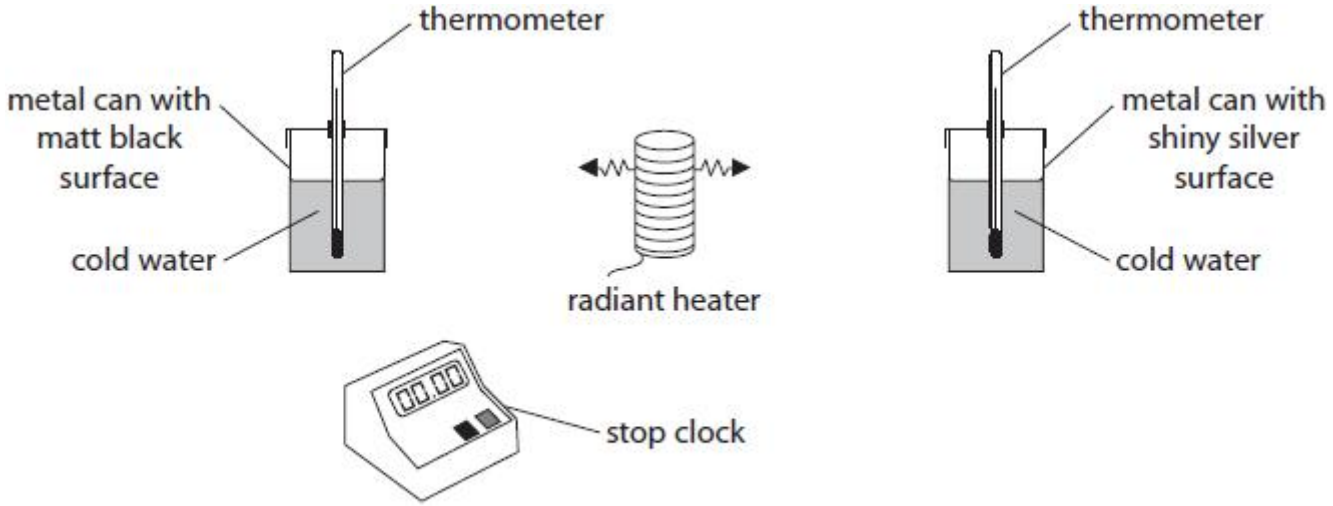


Figure 12

Describe how a student could use the apparatus in Figure 12 to determine which can is the better absorber of thermal radiation.

(4)

.....

.....

.....

.....

.....

.....

.....

.....

(Total for question = 4 marks)

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