RECTILINEAR PROPAGATION AND REFLECTION OF LIGHT

KCSE QUICK REVISION

Compilation of Possible Questions in Physics Likely to be examined in KCSE.

A Special Analysis of Prediction Questions that may be Tested in KCSE from this Topic in Form 1.

PHYSICS

SERIES 1

For Marking Schemes

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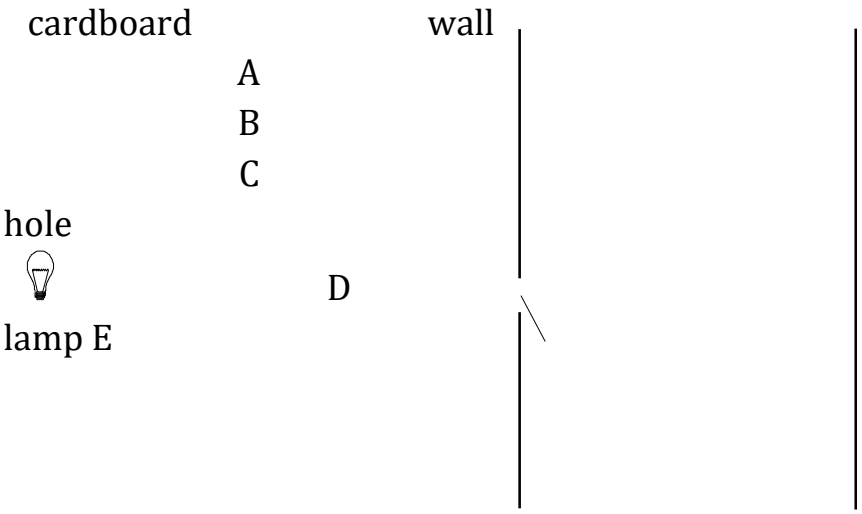
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RECTILINEAR PROPAGATION AND REFLECTION OF LIGHT

1. State the property of light associated with formation of shadows.

(1mk)

2. The diagram shows a lamp and a piece of cardboard. The piece of cardboard has a hole in it. Light from the lamp passes through the hole and forms a bright spot on a wall.



(a) (i) Which point on the wall, A B, C, D or E, is lit up by **the lamp? 1 mark**

(ii) Explain why the **other** points on the wall are **not** lit up by the lamp.

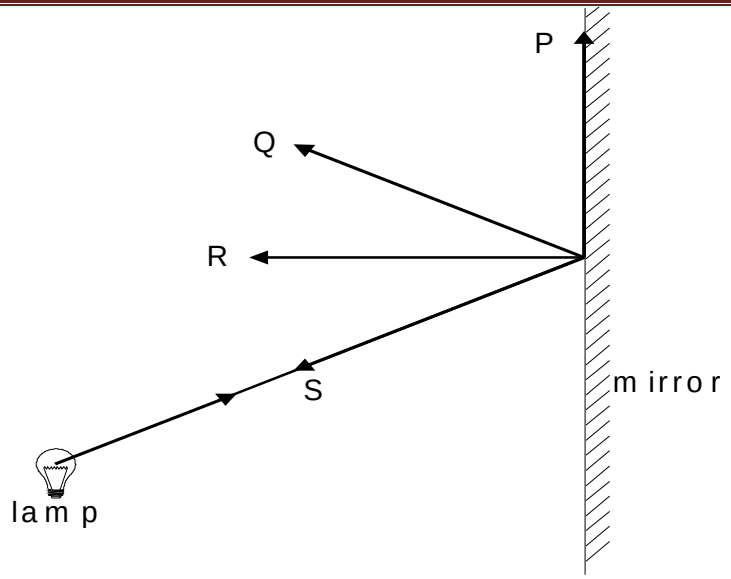
1 mark

(b) A piece of clear green plastic is placed over the hole.

What is the colour of the light which shines on the wall?

1 mark

(c) The diagram shows a ray of light from a lamp hitting a mirror.

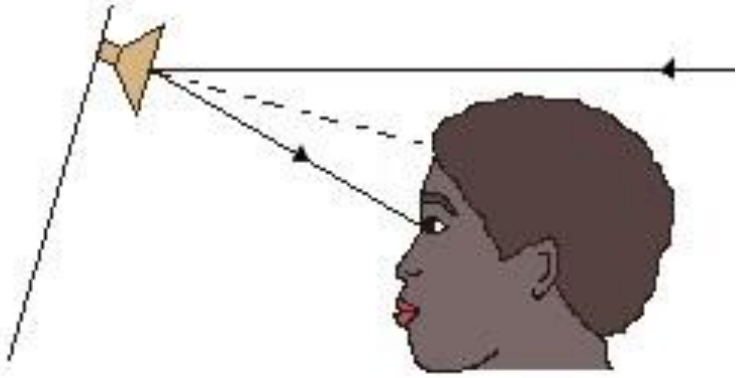


Which arrow, P, Q, R or S, shows the reflected ray?

1 mark

Maximum 4 marks

3. (a) The diagram shows a motorist looking into her driving mirror.



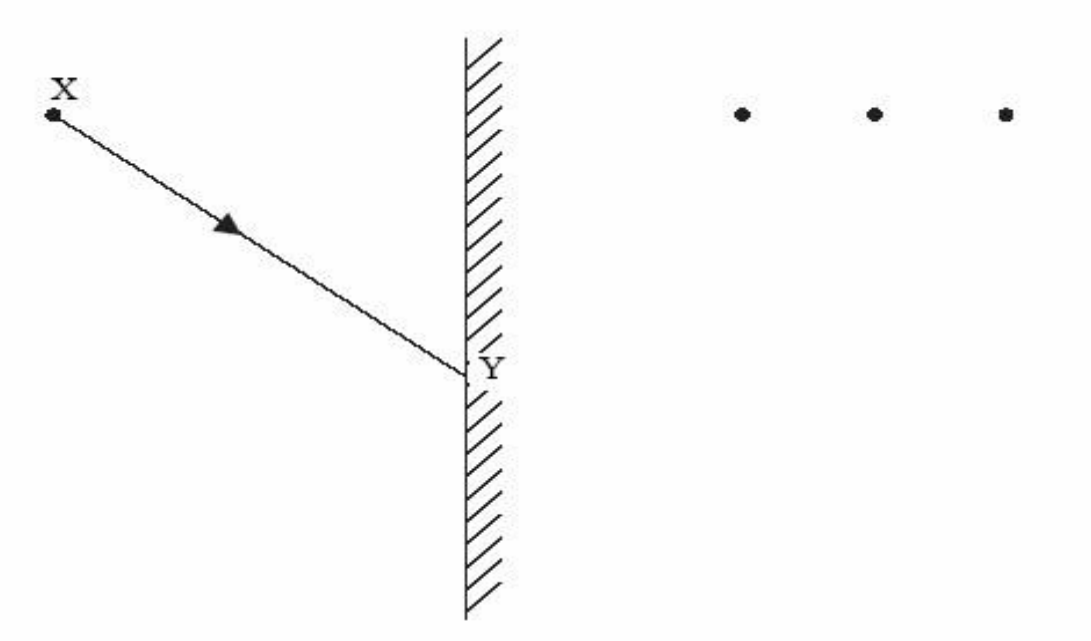
(i) Mark on the diagram: the letter 'I' to show the incident ray and the letter 'r' to show the angle of reflection.

(2 marks)

(ii) Name the dashed line shown in the diagram.

(1 mark)

4. The diagram below shows an object X placed in front of a plane mirror. A ray of light is drawn coming from the object X and striking the mirror at Y. After striking the mirror the ray of light is reflected.



(a) (i) Which of the three dots represents the correct position of the image of X? Label this dot Z.

…… **(1)**

(ii) Draw a line to represent the reflected ray at Y.**(2)**

(b) Mark on the diagram, for the ray XY at the mirror,

(i) The angle of incidence and label it *i*; **(1)**

(ii) The angle of reflection and label it *r*. **(1)**

(c) Is the image at Z real or virtual?

.....

(1)

[Total 6m]

5. James shone a ray of light at a mirror as shown below.

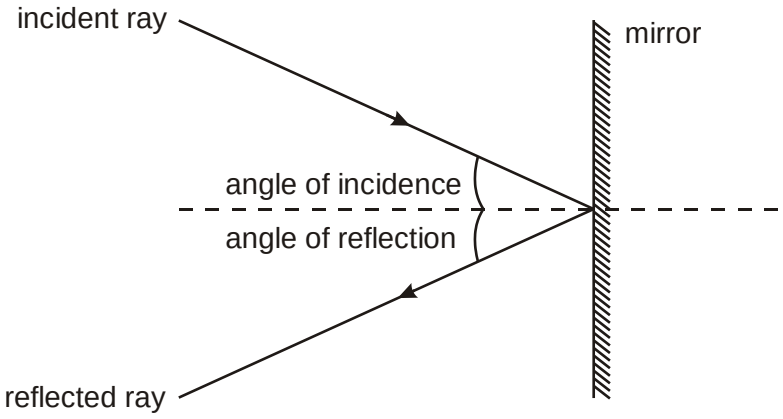


diagram 1

He measured the angle of **reflection** for different angles of incidence. His results are shown below.

angle of **incidence** (º)	30	40	50	60	70
angle of **reflection** (º)	30	40	50	65	70

(a) Which angle of reflection was **not** measured accurately?

.....°

How can you tell this from the table? **1 mark**

(b) James set up a different experiment as shown below.

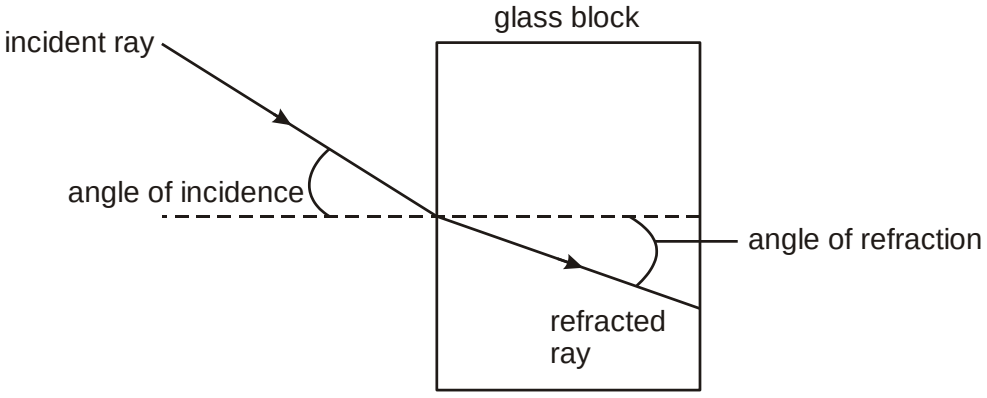
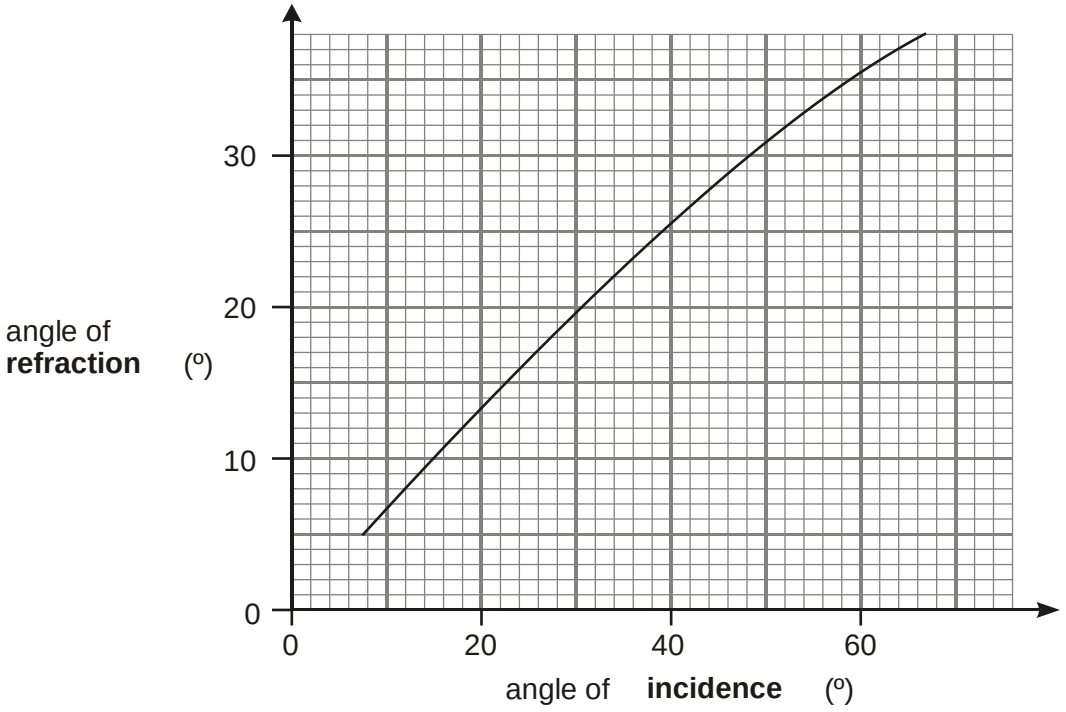


diagram 2

He measured the angle of **refraction** for different angles of incidence.
His results are shown in the graph.



Use the graph to answer the questions below.

(i) When the angle of **refraction** is 20°, what is the angle of **incidence**? .....°

1 mark

(ii) What conclusion could James draw from his graph?
Complete the sentence below.
When light passes from air into glass, the angle of **incidence** is always ..... the angle of **refraction**.

1 **mark**

(c) **On diagram 2,** draw a line to continue the refracted ray as it leaves the glass block.

1 mark
maximum 4 marks

6. The diagram shows a plane mirror used by a dentist to see the back of a patient's tooth.



(a) Use a ruler to draw a ray of light on the diagram to show how the dentist is able to see the tooth labelled **Z**.

(3)

(b) Describe the image formed by a plane mirror.

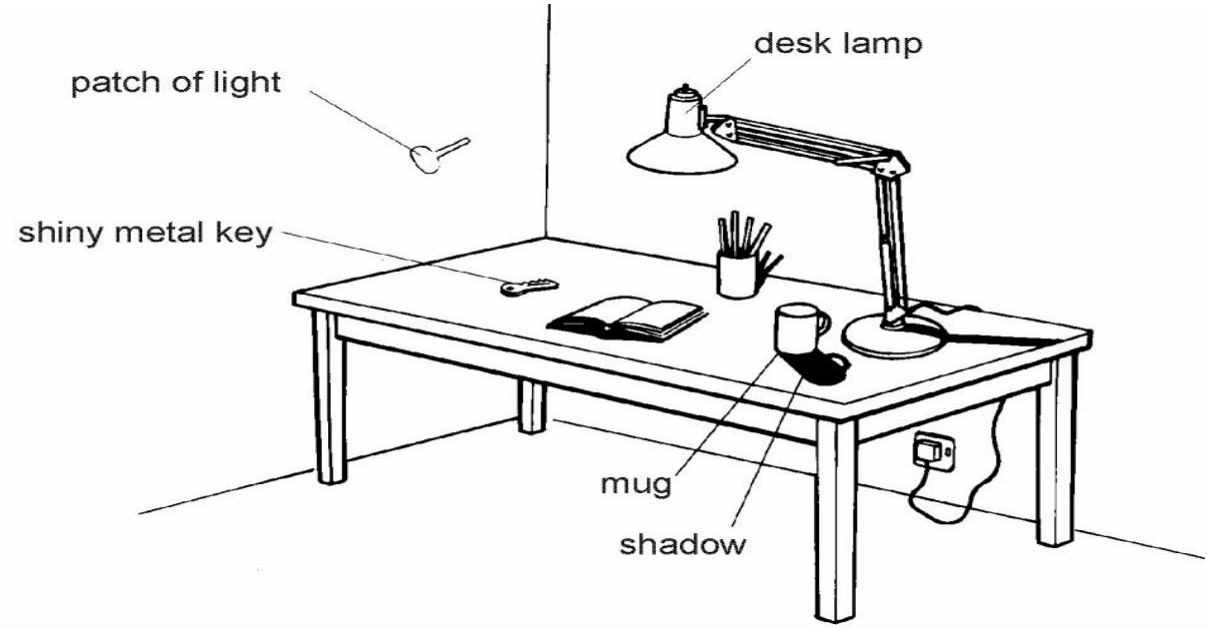
……

……

(2)

(Total 5 marks)

It is night-time and the desk lamp is on. Light shines onto the key.



(c) (i) Draw **one** ray of light on the diagram to show the light shining from the lamp onto the key. Use a ruler.

Put an arrow on the ray to show the direction of the light. **2 marks**

(ii) There is a patch of light on the wall. This light has been reflected from the key. Draw a reflected ray of light on the diagram. Use a ruler. 1 mark

(d) There is a dark shadow on the table beside the mug. Explain how this shadow is formed.

For Marking Schemes/Answers

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