

KING'S ACADEMY

DEPARTMENT OF PHYSICS

Kenya Certificate of Secondary Education

232/2 - PHYSICS (Theory) Paper 2

February 2026

Time 2:00 hours

Name: _____ Adm Number: _____

Candidate's Signature: _____ Date: _____

Instructions to candidates

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of the examination in the spaces provided.
- (c) This paper consists of two sections A and B.
- (d) Answer all the questions in sections A and B in the spaces provided.
- (e) All working must be clearly shown in the spaces provided in this booklet.
- (f) Non-programmable silent electronic calculators may be used.
- (g) This paper consists of 13 printed pages.
- (h) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- (i) Candidates should answer the questions in English.

For Examiner's Use Only

Section	Questions	Maximum Score	Candidate's Score
A	1-13	25	
B	14	12	
	15	12	
	16	11	
	17	11	
	18	09	
	Total Score	80	

Section A (25 marks)

Answer all questions in this section in the spaces provided.

1. State **two** conditions that may lead to the formation of blurred images on the screen of a pin- hole camera. (2 marks)

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2. The graph in **Figure 1** was obtained during a magnetization experiment.

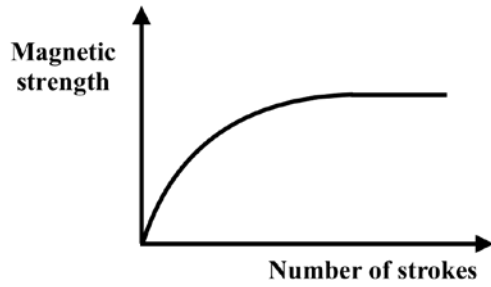


Figure 1

Explain the shape of the graph. (1 mark)

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3. A charged leaf electroscope and two aluminium plates are arranged as shown in **Figure 2**.

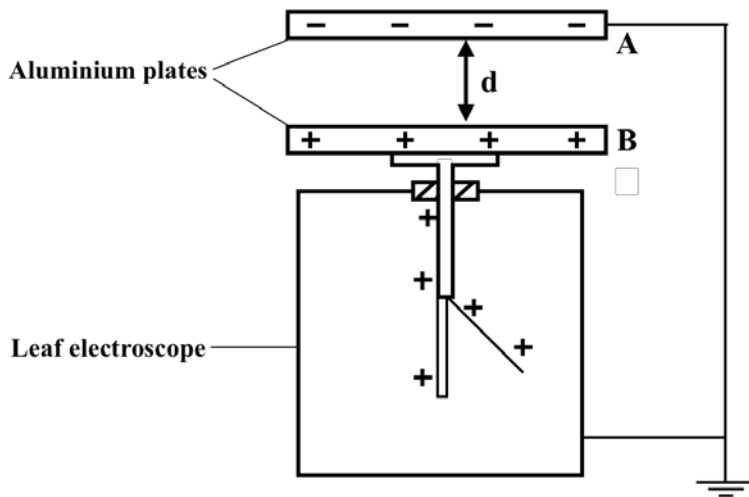


Figure 2

State and explain the observation made on the leaf divergence when the distance d between plate A and B is doubled. (2 marks)

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4. A glass block measures 5 cm by 5 cm by 8 cm. When it is resting on its smallest face and viewed from above, it appears to be a cube. Determine the speed of light in the glass. (*Take speed of light in air, $c = 3 \times 10^8 \text{ ms}^{-1}$*). (2 marks)

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5. The set up shown in **Figure 3** is used by a student to investigate interference in sound waves.

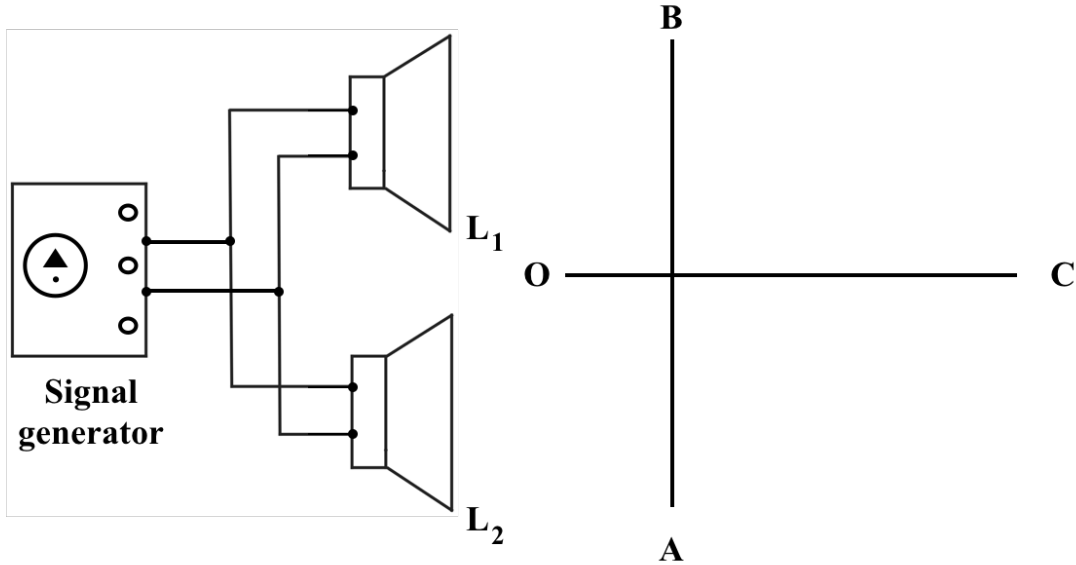


Figure 3

If the speakers are connected to an audio generator, state what is observed when one walks along AB and OC. (2 marks)

AB.....

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OC.....

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6. Explain why the walls of studio are padded with woolen materials. (1 mark)

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7. State **two** ways of minimizing local action in a simple cell. (2 marks)

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8. An image **I** is formed on the principal axis in front of a concave mirror as shown in **Figure 4**.

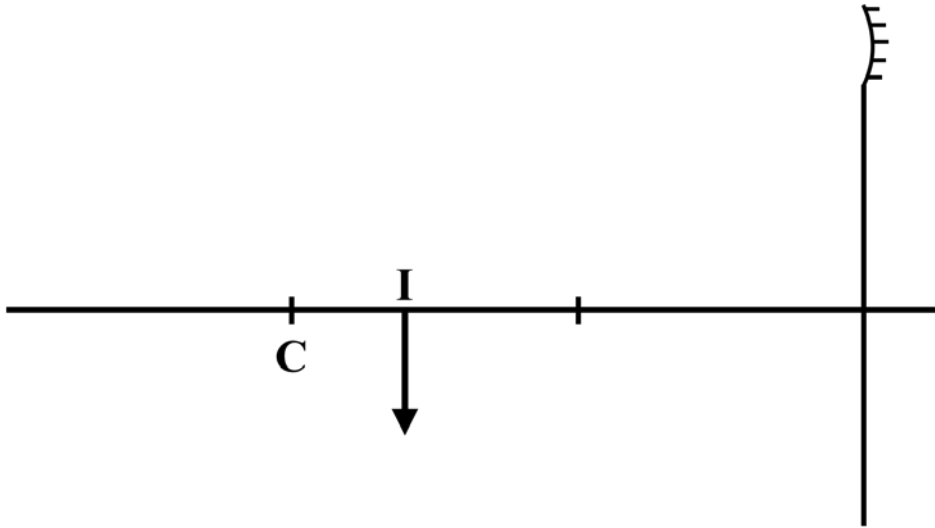


Figure 4

Complete the diagram, using suitable rays, to locate the object.

(2 marks)

9. Arrange the following waves in order of decreasing wavelength.
Infrared, X-rays, Microwaves, Radio waves, Red light.

(1 mark)

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10. **Figure 5** shows the direction of the force on a current carrying conductor placed in a magnetic field.

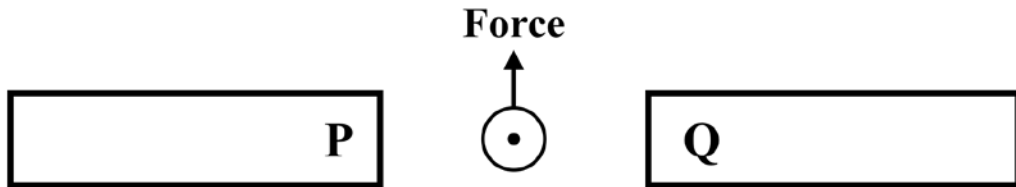


Figure 5

State the polarities of P and Q.

(2 marks)

P

Q

11. State **one** method of increasing the speed of an electric motor.

(1 mark)

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12. The **Figure 6** shows a graph of the variation of voltage V against current I across terminals of a cell.

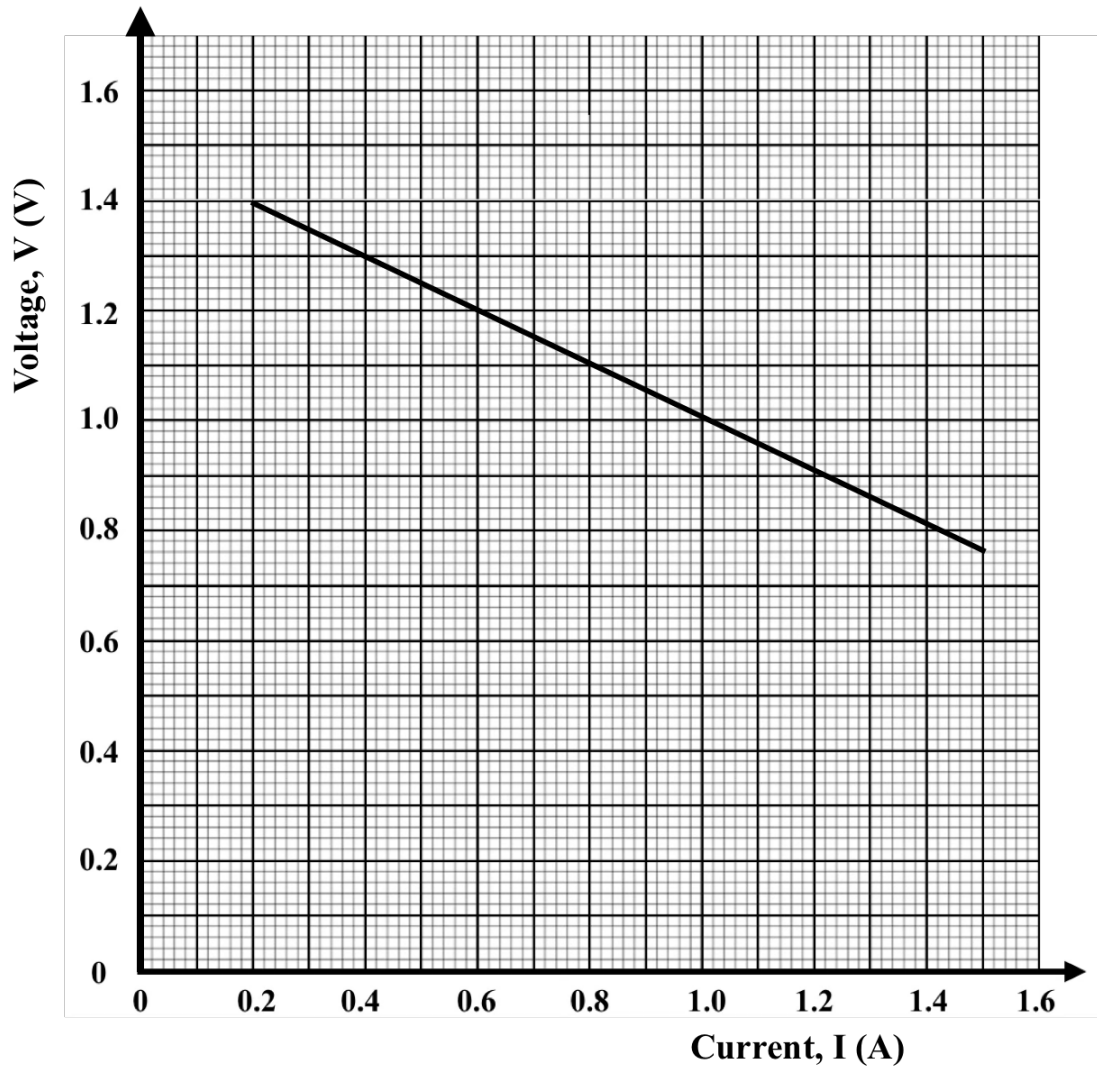


Figure 6

- (a) Use the graph to determine the electromotive force (emf) of the cell. (1 mark)

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- (b) In the space provided, draw a circuit diagram that may be used to obtain the values plotted in the graph. (2 marks)

13. A house has 12 lamps; each rated at 75 W and designed to run from a 240 V supply. Determine the minimum fuse rating that should be installed in the lighting circuit. (2 marks)

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14. **Figure 7** shows a defect of vision being corrected by use a diverging lens placed in front of the eye.

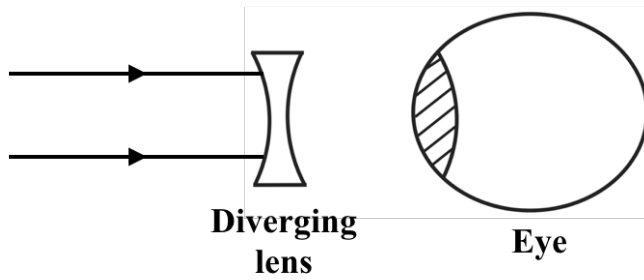


Figure 7

Complete the rays to show the effect of the lens.

(2 marks)

SECTION B (55 marks)

Answer all questions in this section in the spaces provided.

15. (a) State **two** differences between Ohmic and non-Ohmic conductors. (2 marks)

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- (b) **Figure 8** shows a circuit with resistors and voltmeter connected to a battery of two cells.

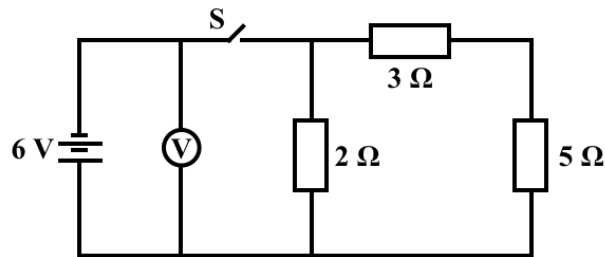


Figure 8

- (i) If each cell has an internal resistance of $0.7\ \Omega$, determine the total resistance in the circuit. (3 marks)

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- (ii) Determine the amount of current that flows through the $3\ \Omega$ resistor when the switch is closed. (3 marks)

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- (iii) State the reading of the voltmeter when the switch S is:
(I) open, (1 mark)

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(II) Closed (1 mark)

- (iv) Account for the difference between the answers in (I) and (II) in iii above (1 mark)

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16. (a) (i) State the difference between the way progressive waves and stationary waves are formed. (1 mark)

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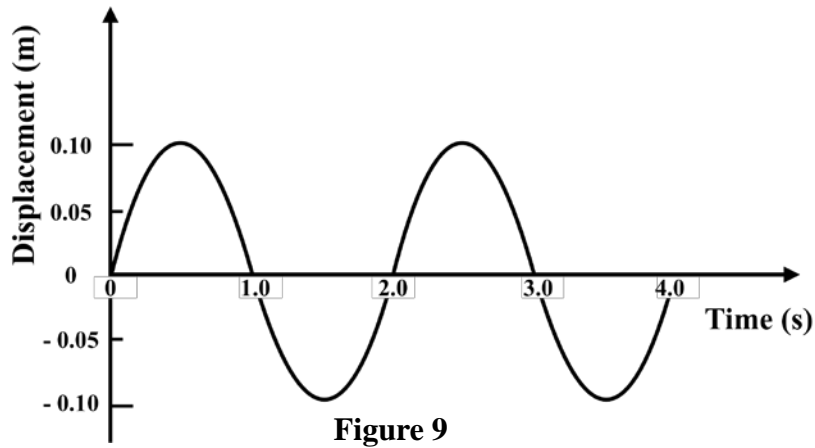
- (ii) Give **one** example of each type of wave. (2 marks)

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- (b) **Figure 9** shows how displacement of a wave varies with time as it passes a fixed point.



- Determine the frequency of this wave. (2 marks)

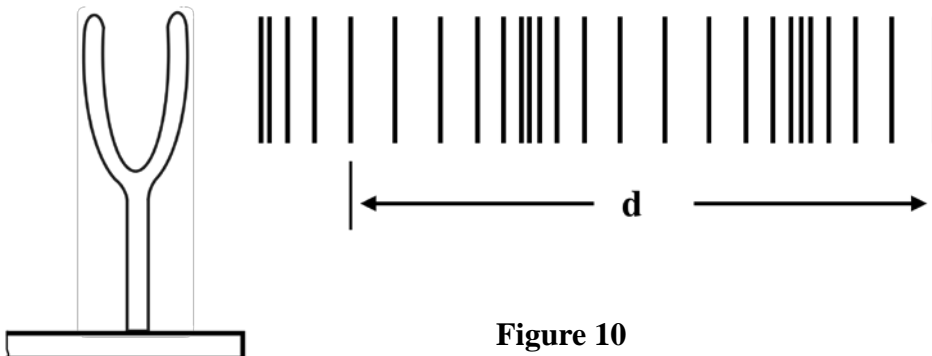
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- (c) **Figure 10** shows a tuning fork producing sound waves of frequency 512 Hz.



If the speed of sound in air is 330 ms^{-1} , determine the value of d. (3 marks)

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(d) **Figure 11** shows wavefronts in a ripple tank approaching a shallow region.

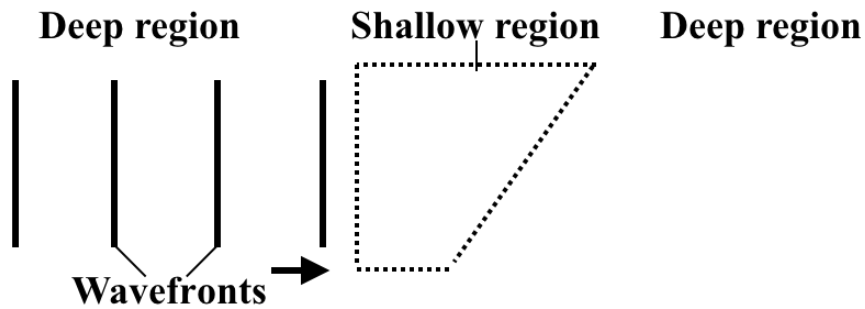


Figure 11

Complete the diagram to show the wavefronts in shallow region and beyond. (2 marks)

(e) A student standing behind a wall of a classroom hears a bell ringing although he cannot see The bell. Give the name of this property of sound. (1 mark)

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17. (a) (i) Give a reason why the cap of the gold leaf electroscope is circular. (1 mark)

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(ii) A matchstick is lit near the cap of a charged electroscope. State and explain what is observed (2 marks)

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(b) State **one** factor which affects the capacitance of a parallel plate capacitor. (1 mark)

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(c) A $10\ \mu\text{F}$ capacitor is charged to potential difference of $300\ \text{V}$ and isolated. It is then connected in parallel to a $5\ \mu\text{F}$ capacitor. Determine:

(i) the resultant potential difference. (3 marks)

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(ii) the total energy in the two capacitors after connection. (2 marks)

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18. (a) (i) Define the principal focus in relation to a diverging lens. (1 mark)

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(ii) State **two** differences between human eye and the camera (2 marks)

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(b) A real image, half the size of the object is formed by a lens. If the distance between the object and the image is $450\ \text{mm}$, determine the focal length of the lens. (3 marks)

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(c) (i) **Figure 12** shows a virtual image formed by a convex lens.

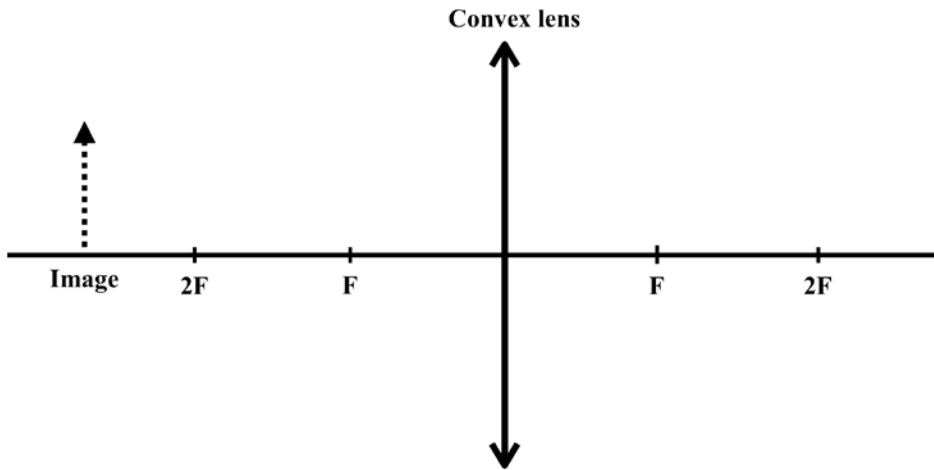


Figure 12

Complete the ray diagram to show the position of the object. (2 marks)

(ii) State **one** application of such a lens used in d(i) above. (1 mark)

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(d) (i) State Lenz's law of electromagnetic induction (1 mark)

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(ii) **Figure 13** shows two coils A and B placed close to each other. Coil A is connected to a steady d.c supply and coil B is connected to a sensitive galvanometer

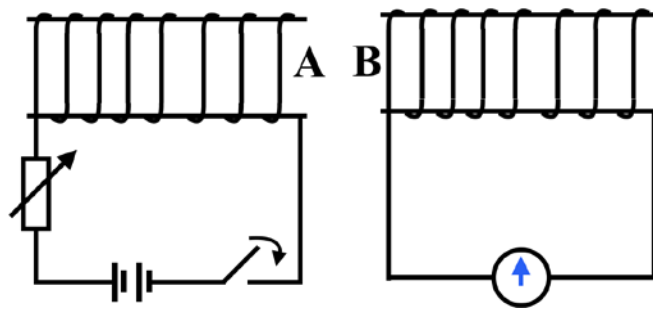


Figure 13

(I) State and explain the observation made when the switch is closed. (3 marks)

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- (II) When the switch is opened, it is observed that the galvanometer gives a greater deflection than before and the pointer returns to zero. Explain why the deflection is greater when opening than when closing. (1 mark)

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19. (a) State Snell' law of refraction. (1 mark)

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- (b) **Figure 14** shows sunlight incident on a raindrop.

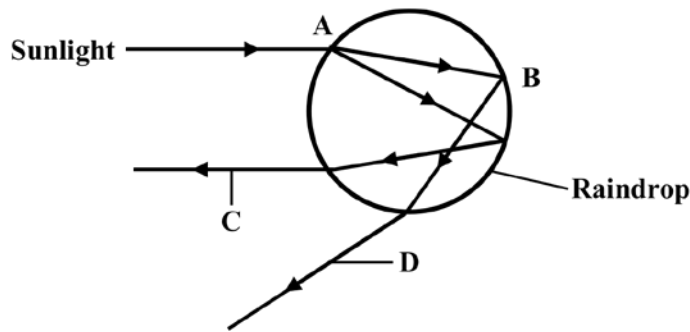


Figure 14

- (i) State what happens at:
- A (1 mark)
- B (1 mark)
- (ii) Identify the colour of :
- ray C (1 mark)
- ray D (1 mark)

- (c) **Figure 15** shows the path of light passing through a rectangular block of Perspex placed in air.

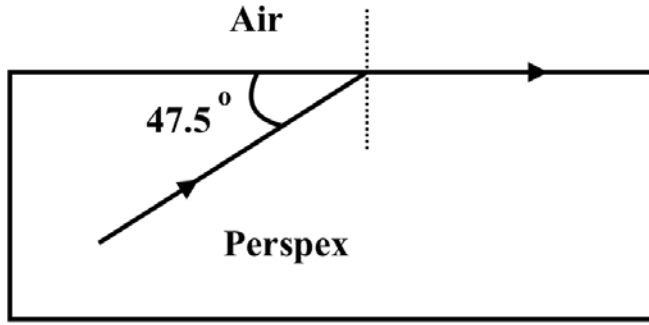


Figure 15

Determine:

- (i) the critical angle, C , for the block, (1 mark)

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- (ii) the refractive index of Perspex. (2 marks)

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- (d) State conditions necessary for total internal reflection. (2 marks)

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