

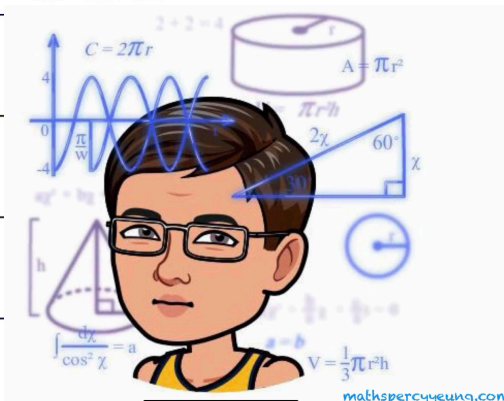
Term 2 Assessment 2025-2026

Grade : G9

Subject : Integrated Science (Physics)

Date : - 8 JUN 2026

Time Allowed : 50 minutes



(No.)

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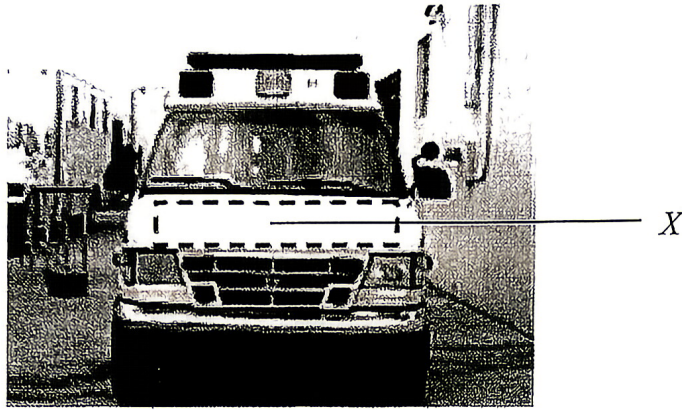
Question-Answer Book

INSTRUCTIONS

1. There are **TWO** sections, A and B, in this Paper. Section A consists of multiple-choice questions, while Section B contains conventional questions.
2. Section A carries 10 marks and Section B carries 30 marks. Answer **ALL** questions.
3. Answers to Section A should be marked on the Multiple-choice Answer Sheet while answers to Section B should be written in the spaces provided in the Question-Answer Book. The Multiple-choice Answer Sheet for Section A and the Question-Answer Book must be handed in separately at the end of the assessment.
4. When told to open this book, check that all the questions are there. Look for the words '**END OF PAPER**' after the last question.
5. The diagrams in this Paper are NOT necessarily drawn to scale.
6. The number inside a bracket after a question indicates the marks of the question.
7. Unless otherwise specified, numerical answers should be corrected to **3 significant figures**.

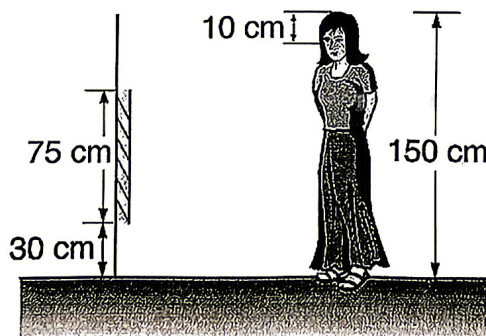
Section A: Multiple-choice Questions (10 marks)

1. The figure below shows an ambulance. Words will be painted to the front part of the ambulance (area X in the figure) to raise the awareness of the car drivers who are driving ahead. Which of the following words should be painted to the front part of the ambulance so that they can be viewed correctly by the car drivers through rear-view mirrors?



- A. AMBULANCE B. ENAJUBMA
C. ENAJUBMA D. AMBULANCE

2. In the following figure, a girl 150 cm tall stands facing a 75 cm long mirror, the bottom edge of which is 30 cm above the floor.



If the girl's eyes are 10 cm below the top of her head, which of the following statements is **incorrect**?

- A. The girl cannot see her whole image no matter how far she is from the mirror.
B. The girl cannot see her whole image no matter how high she hangs the mirror.
C. The distance between the girl and the mirror is the same as the distance between the girl's image and the mirror.
D. The girl's image can be photographed.

3. Figure 3a shows a light ray travelling from air into medium X . The angle of incidence is 50° and the angle of refraction is r . Another light ray from medium X to air is shown in Figure 3b. The angle of incidence is 35° and the angle of refraction is also equal to r .

What is angle r ?

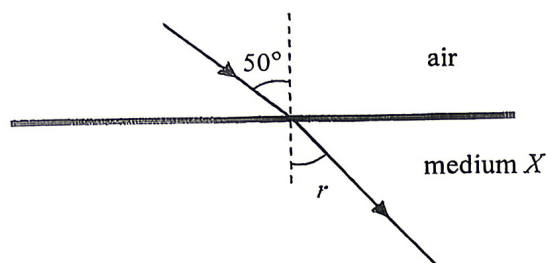


Figure 3a

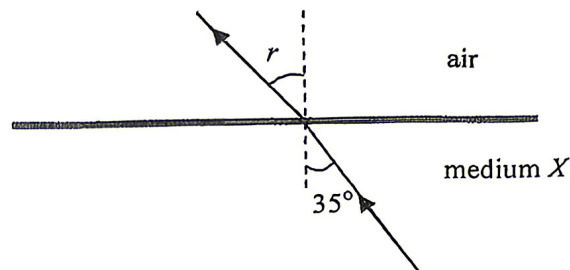
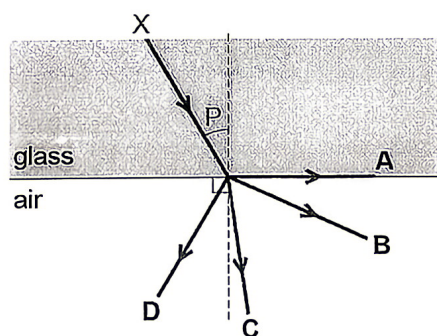


Figure 3b

- A. 26.1°
- B. 41.5°
- C. 42.5°
- D. 48.5°

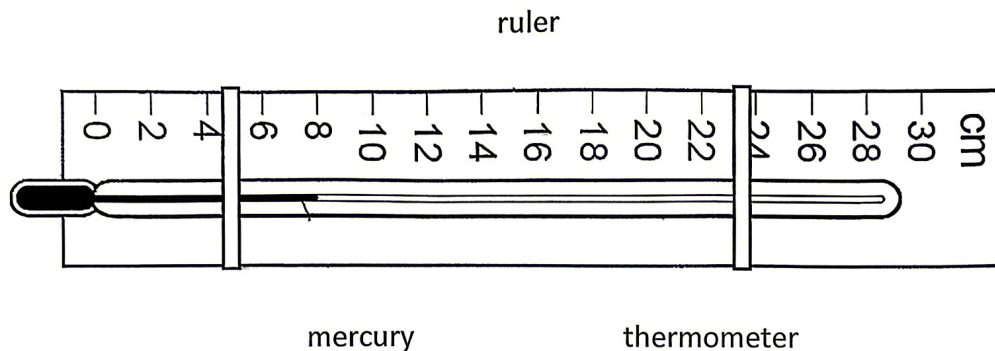
4. The diagram shows a ray of light travelling from X . Angle P is less than the critical angle. In which direction does the ray continue?



5. A projector lens produces a clear, enlarged image of a slide on a screen. How could a clear image with greater magnification be obtained?

- A. Move the screen towards the lens while moving the lens towards the slide.
- B. Move the screen towards the lens while moving the lens away from the slide.
- C. Move the screen away from the lens while moving the lens towards the slide.
- D. Move the screen away from the lens while moving the lens away from the slide.

6. An object is placed at the principal focus of a diverging lens. If the focal length of the lens is 12 cm, what is the image distance?
- A. 3 cm
B. 4 cm
C. 6 cm
D. 12 cm
7. A mercury thermometer with no scale is taped to a ruler as shown. When the thermometer is placed in pure boiling water, the mercury level rises to 23.0 cm. When the thermometer is placed in pure melting ice, the mercury level falls to 5.0 cm.



Which temperature is shown by the mercury level in the diagram?

- A. 3.48 °C
B. 8 °C
C. 15 °C
D. 16.7 °C
8. A light bulb releases a total of 24 000 J of energy in 4 minutes. What is the power of the light bulb?
- A. 0.1 J
B. 0.4 kJ/s
C. 60 kW
D. 100 W

9. In an experiment, Ivy measures the specific heat capacity of aluminium and obtains the following result:

mass of aluminium block = m kg

initial temperature = $25\text{ }^{\circ}\text{C}$

final temperature = $40\text{ }^{\circ}\text{C}$

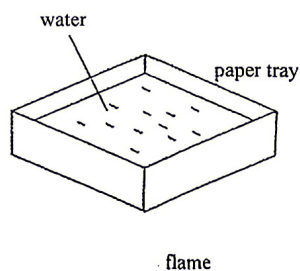
initial joulemeter reading = R_1 J

final joulemeter reading = R_2 J

Which of the following expressions gives the specific heat capacity of aluminium (in $\text{J kg}^{-1}\text{ }^{\circ}\text{C}^{-1}$)?

- A. $\frac{R_2 - R_1}{15m}$
- B. $\frac{m(R_1 - R_2)}{15}$
- C. $\frac{R_1 - R_2}{15m}$
- D. $\frac{m(R_2 - R_1)}{15}$

10. A paper tray contains some water. The tray is heated by a gentle flame from below as shown. The water in the tray starts to boil while the paper does not catch fire. Which of the following statements are correct in this situation?

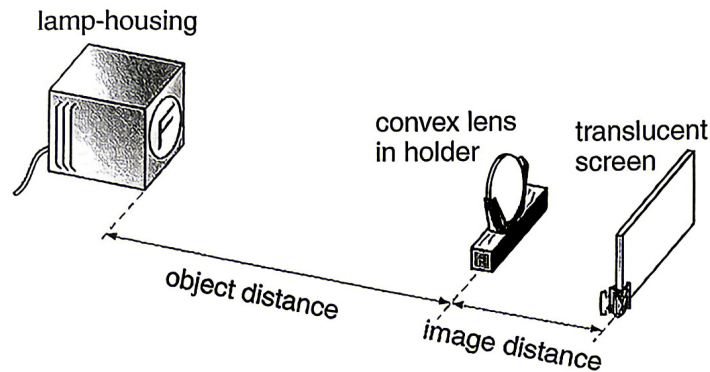


- (1) Water can transfer heat away from the paper tray very quickly.
- (2) Water remains at $100\text{ }^{\circ}\text{C}$ when it is boiling
- (3) There is no heat transfer through radiation between the paper tray and the flame.
- A. (1) and (2) only
- B. (2) and (3) only
- C. (1) and (3) only
- D. (1), (2) and (3)

****END OF SECTION A****

Section B: Structured Questions (30 marks)**Answer all questions in the spaces provided.**

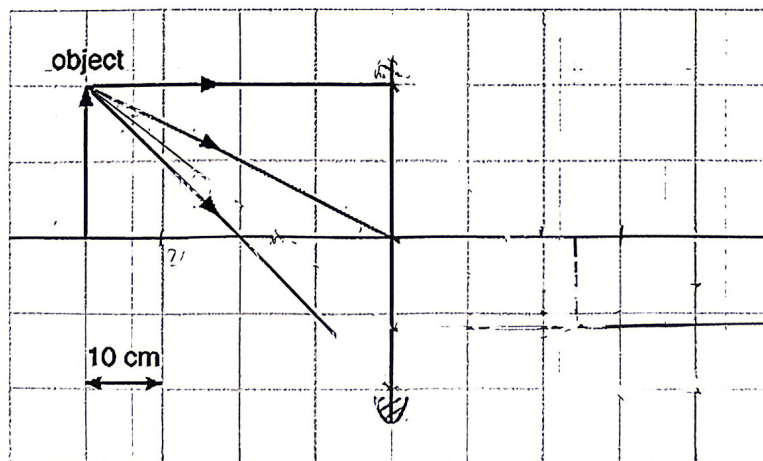
1. A student puts an illuminated letter F at a distance u of 40 cm from the lens. Then he puts a screen in a position so that a sharp image is projected on it. The image distance v is 24 cm.



- (a) State the nature of the image on the screen as it is observed on the right side of the set-up. (3 marks)

- (b) Find the magnification of the image. (1 mark)

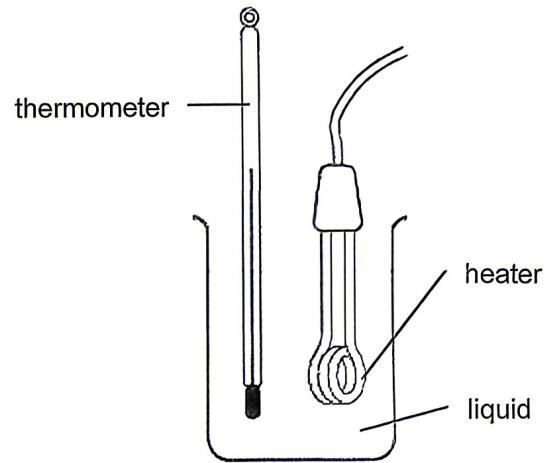
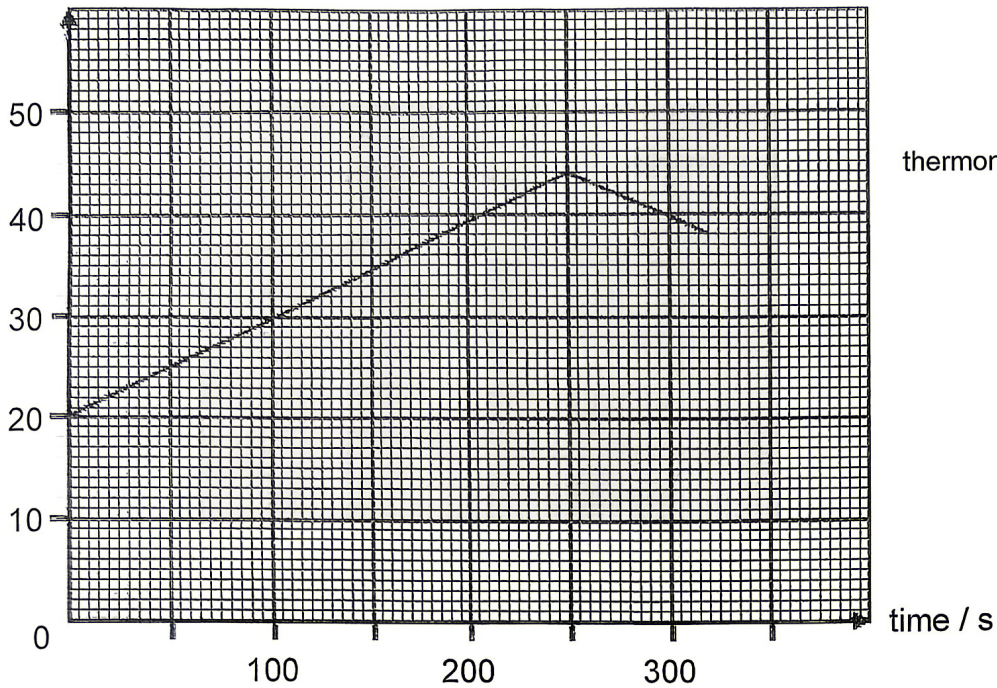
- (c) The ray diagram below shows how the image of the object is formed. Draw on the diagram
 (i) the refracted rays, (2 marks)
 (ii) the image. (1 mark)



- (d) Using (c) or otherwise, find the focal length of the lens. (1 mark)

2. A beaker containing 400 g of liquid is heated by a 100 W immersion heater for an unknown period of time. The temperature of the liquid varies with time as shown.

temperature / °C



- (a) A student states that the temperature of the liquid rises even when the heater is switched off. Explain whether he is correct or not. (2 marks)

- (b) (i) Assume that the heater is switched off after increasing the water temperature by 20 °C, find the energy released by the heater based on the graph above. (2 marks)

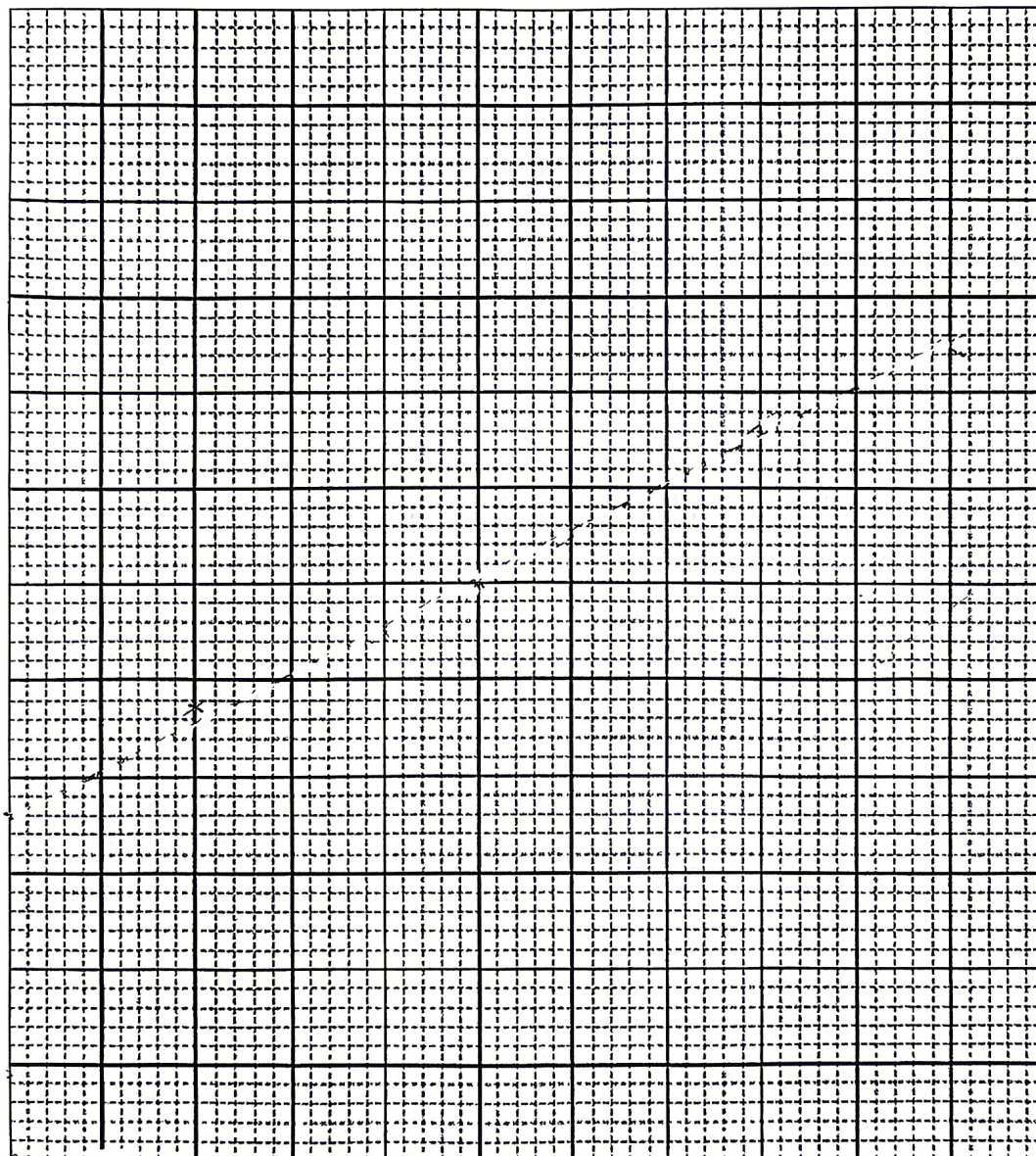
- (ii) Find the specific heat capacity of the liquid. (2 marks)

3. The table below shows the length of the column of a mercury-in-glass thermometer at various temperatures.

Temperature $T / ^\circ\text{C}$	0	20	40	60	80	100
Length of column L / mm	36	47	55	65	77	85

- (a) Plot a graph of L against T .

(4 marks)



- (b) When the thermometer is placed in a beaker of water, the length of the column is 60 mm. Use the graph in (a) to find the water temperature. (1 mark)

4. Peter uses a long iron skewer to cook a piece of steak over the charcoal. Meanwhile, Mary wraps the sweet potatoes in aluminium foil and places them beside the charcoal in the stove.

(a) Explain why the handle of a skewer is usually made of wood. (2 marks)

(b) It takes a long time to fully cook the sweet potatoes. Suggest a possible reason and explain briefly. (3 marks)

5. In a restaurant, 'wontons in soup' is prepared by putting 5 pieces of cooked wonton at 4°C into a bowl with 0.60 kg of soup at temperature 96°C .

Given: Average mass of each piece of wonton = 0.02 kg
Specific heat capacity of wonton = $3300 \text{ Jkg}^{-1}\text{C}^{-1}$
Specific heat capacity of soup = $4200 \text{ Jkg}^{-1}\text{C}^{-1}$

- (a) Use the data provided to estimate the final temperature of the mixture. (3 marks)

- (b) Should the actual final temperature of the mixture be greater than, equal to or smaller than the value calculated in (a)? Suggest two reasons to support your answer. (3 marks)

****END OF SECTION B****

- End of Paper -