
ICSE 2026 SPECIMEN**DRAFT MARKING SCHEME – PHYSICS (SCIENCE PAPER 1)**

Question 1

[1x15]

- (i) (a) positive
- (ii) (c) momentum
- (iii) (b) heat → mechanical → electrical
- (iv) (d) Velocity Ratio remains unchanged and efficiency increases.
- (v) (d) slows down less and refracts less
- (vi) (a) refraction
- (vii) (b) away from the lens
- (viii) (c) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (ix) (b) X will be grave and Y will be shriller
- (x) (c) current through 2 Ω = current through 5 Ω
- (xi) (b) green
- (xii) (d) $\frac{\text{power primary}}{\text{power secondary}} = 1$
- (xiii) (b) energy needed to raise the temperature of a body by 1°C
- (xiv) (c) latent heat of fusion
- (xv) (c) protons = 93, neutrons = 144

Question 2

- (i) (a) Class II [1]
- (b) microwaves [1]
- (c) $\text{m}^2\text{s}^{-2}\text{K}^{-1}$ [1]
- (d) 0dB [1]
- (e) temperature [1+1]
- (f) Nuclear fusion
- (ii) (a) Nodding head → Class I [1]
- (b) Lifting body weight on your toes → Class II [1]
- (iii) (a) Ultrasonic waves [1]
- (b) They travel long distance without deviation / not easily absorbed by the medium [1]
- OR can be confined to a narrow beam.

Question 3

- (i) (a) 2 images will be seen. [1]
 (b) concave lens. [1]
- (ii) Energy spent = $1567 - 856 = 711 \text{ kWh}$ [1]
 Time in hours = $711/2 = 355.5$ hours [1]
- (iii) (a) X [1]
 (b) Z [1]
- (iv) By principle of mixtures
 Heat lost = heat gained
 $(m \times c \times \Delta T)_{\text{metal}} = (m \times c \times \Delta T)_{\text{water}}$ [1]
 $c' \times 75 = 150 \times 4.2 \times 5$
 $c' = 42 \text{ J K}^{-1}$
- (v) (a) True [1]
 (b) Both currents AC & DC produce magnetic field around it. [1]
- (vi) (a) gamma / γ [1]
 (b) No. [1]
- (vii) (a) total internal reflection [1]
 (b) 1. Light ray should travel from denser to rarer medium [1]
 2. Angle of incidence must be greater than critical angle. [1]

Question 4

- (i) (a) Total internal reflection. [1]
 (b) 1. Converge [1]
 2. Diverge [1]
- (ii) (a) Real depth = 25 cm [1+1]
 Refractive index = 1.25
 Apparent depth = Real depth / refractive index
 $25/1.25 = 20 \text{ cm}$.
- (b) length will decrease [1]
- (iii) (a) Different points. [1]
 (b) Ultraviolet radiation [1]
 (c) Sterilization purposes / Detecting purity of gems, eggs/ in producing vitamin D [1]
 (d) Visible or infra-red or microwaves or radio waves. [1]

Question 5

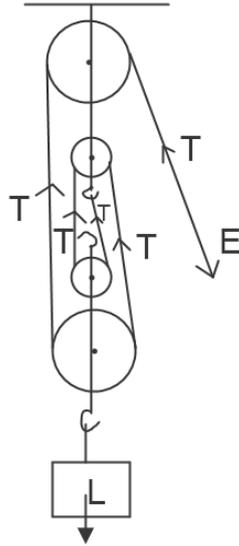
- (i) (a) Real, inverted [1]
- (b) $\frac{1}{v} - \frac{1}{u} = \frac{1}{f} \therefore \frac{1}{v} - \frac{1}{-24} = \frac{1}{8}$ [1]
 (identifying 'U' and 'f' with correct sign convention) [1]
 $\frac{1}{v} = \frac{3-1}{24} \therefore v = 12 \text{ cm}$ [1]
- (ii) (a) 150°C - [1+1]
 (b) 150°C to 60°C
 (c) True. [1]
- (iii) Heat lost by Cu = $0.12 \times 400 \times (t - 35)$ [1x4]
 Heat gained by water = $0.84 \times 4200 \times (35 - 15)$
 $t - 35 = \frac{0.84 \times 4200 \times 20}{0.12 \times 400} = 7 \times 42 \times 5 = 1470 \text{ }^\circ\text{C}$
 $t = 1470 + 35 = 1505 \text{ }^\circ\text{C}$

Question 6

- (i) (a) Weight of AC < weight of BC [1]
 (b) Even though the weights present are the same at both ends, the torque arm of B is less than the torque arm of A. [2]
 This means the moment of the weight of the rod acts from side B and the C.G. lies beyond 40. Thus, more weight is concentrated between C to B.
- (ii) (a) No work is done. [1]
 (b) Negative work is done. [1]
 (c) Positive work is done. [1]
- (iii) (a) Potential energy at A relative to B [1]
 $PE_A = mgh$
 $= 0.5 \times 10 \times 1.8 = 9\text{J}$
 (b) Speed at point B (lowest point) [1]
 Using energy conservation
 $PE \text{ at A} = KE \text{ at B} \Rightarrow mgh = \frac{1}{2} mv^2$
 $v = \sqrt{2gh} = \sqrt{2 \times 10 \times 1.8}$
 $= 6\text{m/s}$
 (c) Kinetic and Potential energy at D [1+1]
 Therefore, height above B = $2R/3$
 $= 1.2\text{m}$
 $P.E. \text{ at D} = mgh$
 $= 0.5 \times 10 \times 1.2 = 6\text{J}$
 $K.E. \text{ at D} = TE - PE \text{ at D} = 9 - 6 = 3\text{J}$

Question 7

(i)



(a) Pulleys drawn correctly with support
 Correct connection of tackle, Marking load, effort with correct direction and tension [1+1]

(b) $U = mgh = 100 \times 10 \times 5$
 $U = 5000 \text{ J}$ [1]

(ii) (a) $d = (s \times t) / 2 \quad \therefore d = (336 \times 3) / 2$ [1+1]
 $d = 168 \times 3 = 504 \text{ m}$

(b) $d = (s \times t) / 2$ [1]
 $\therefore d = (336 \times 1.5) / 2 = 168 \times 1.5 = 252 \text{ m}$
 Distance moved = $504 - 252 = 252 \text{ m}$

(iii) (a) At A [1]

(b) Resonance [1]

(c) The natural frequency of the swing will match the frequency of the force applied by mother this will increase the amplitude. [1+1]

Question 8

(i) (a) Resistance of the tube 2 < resistance of the tube 1 [1]

(b) The voltmeter reading for tube 1 is the same as the voltmeter reading for tube 2. [1]

(c) The specific resistance in both the cases is the same. [1]

(ii) (a) S [1]

(b) metal body of appliance is earthed [1+1]

$$I = PV = 2000/220 = 9.09 \text{ A} \quad 10\text{A fuse is appropriate}$$

(iii) (a) $R_{of X} = \frac{\rho l}{A}$ $R_{of Y} = \frac{\rho 2l}{\frac{A}{2}} = 4 \frac{\rho l}{A}$ $R_X : R_Y = 1:4$ [1+1]

(b) $P_X = \frac{V^2 t}{R} = \frac{10^2}{R}$ $P_Y = \frac{V^2 t}{R} = \frac{20^2}{4R}$ $\therefore P_X : P_Y = 1:1$ [1+1]

(c) $mass\ of\ X = A \times l \times d = mass\ of\ Y = \frac{A}{2} \times 2l \times d \therefore m_X : m_Y = 1:1$

(d) True

$$Q_X = mc\Delta T = Al \times c \times 8 = \frac{V^2 t}{R} = P_X \times t \rightarrow eq\ 1$$

$$Q_Y = mc\Delta T = Al \times c \times \Delta T = \frac{V^2 t}{R} = P_Y \times t \rightarrow eq\ 2$$

Eq1/eq2 = 1 (rise in temperature will be same in both wires)

Question 9

(i) (a) parallel [2+1]

(b) $V_1 = V_2 = V_3$

(c) Yes

(ii) (a) It will be doubled. [1]

(b) It will be halved. [1]

(c) If speed is doubled, it means time of a cycle will be halved. [1]

(iii) (a) $\beta : {}_{92}^{238}C \rightarrow {}_{93}^{238}E + {}_{-1}^0\beta$ [1]

(b) isotopes [1]

(c) It will shift towards the negative plate [1+1]