

CSSC SOUTHERN ZONE 2026

FORM TWO PHYSICS MARKING SCHEME

SECTION A

i	ii	iii	iv	v	vi	vii	viii	ix	x
C	D	B	A	A	A	B	B	D	A

(10 marks)

LIST A	i	ii	iii	iv	v
LIST B	G	E	D	A	B

Total 10 marks

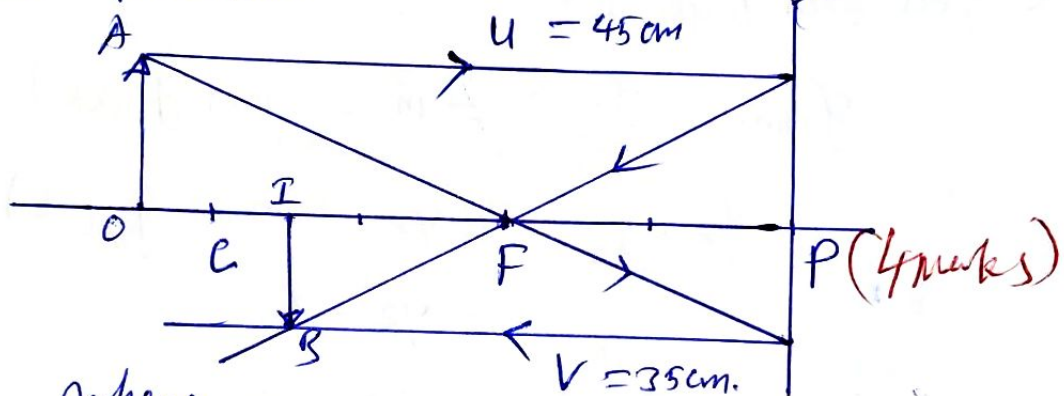
(10 marks)

Total = 105 marks

SECTION B

3 (a) Mirror A (1 mark)

Scale 1cm represents 5cm



Where

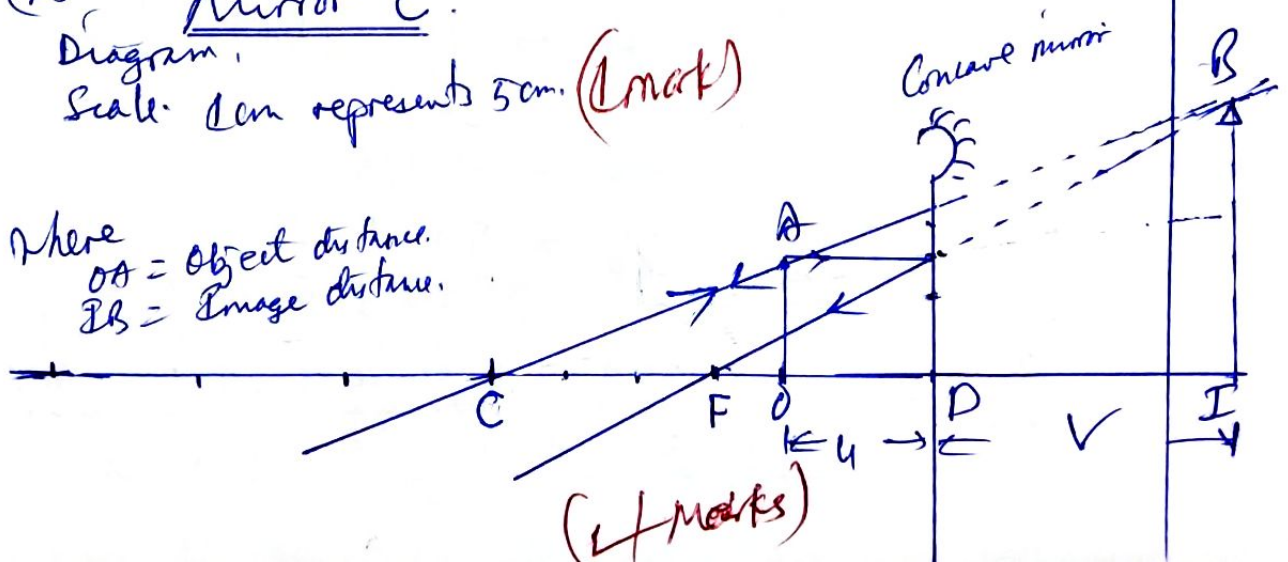
OA = Object height
 IB = Image height
 u = object distance
 v = image distance

(b) Mirror C

Diagram

Scale 1cm represents 5cm (1 mark)

Where
 OA = object distance
 IB = image distance



4 (a) Answer
 A yellow object appears red in red light because it reflects red colour (in yellow there is Rtg)
 When this object is illuminated with blue light appears black since blue colour is absorbed since there is no blue colour in yellow light
 (4 marks)

Data. Solution
 Separation distance (L) = 78 cm
 Magnification (m) = 15
 Eyepiece focal (Fe) = ?
 Object focal length (Fo) = ?

$$\text{From } \frac{F_o}{F_e} = m \quad \text{--- (i) (1 mark)}$$

$$-F_e + F_o = 78 \quad \text{--- (ii) (1 mark)}$$

$$F_o = 78 - F_e$$

$$\frac{78 - F_e}{F_e} = 15 \quad \text{(1 mark)}$$

$$78 - F_e = 15 F_e$$

$$78 = 15 F_e + F_e$$

$$78 = 16 F_e \quad \text{(1 mark)}$$

$$F_e = \frac{78}{16}$$

$$F_e = 4.875$$

$$F_o = 78 - 4.875 \text{ cm}$$

$$= 73.125 \text{ cm.} \quad \text{(1 mark)}$$

∴ The objective and eyepiece focal lengths are 73.125 cm and 4.875 cm respectively.

(a)

Mass is the amount of substance contained in the substance SI unit is Kilogram while

Volume is the amount of space occupied by a substance. The SI unit is cubic metre.

(1 mark)
Total 3 marks

(b)

(1)

Answer

Measurement using metre rule starts beyond zero mark because the end with zero mark may be worn out and may lead to zero error (4 marks)

(c)

Solution

Main scale = 1.80 cm

Vernier scale = 0.04 cm

Total reading = 1.84 cm

(3 marks)

∴ The value of the length is 1.84 cm

6

(a) Proper amount of salt in the tank will be maintained by using a hydrometer which records the density of water with relation to the amount of salt.

(3 marks)

(b) (i)

SolutionDataWeight in air (W_1) = 0.27 NWeight in water (W_2) = 0.12 Nupthrust (U) = ?Density of liquid (ρ_l) = 800 kg/m³= 0.8 g/cm³

6. (b) (i)

$$\begin{aligned} \text{upthrust}(w) &= w_1 - w_2 \\ &= 0.27 \text{ N} - 0.12 \text{ N} \\ &= 0.15 \text{ N} \quad (\text{1 mark}) \end{aligned}$$

$$\begin{aligned} \text{mass of displaced water} &= \frac{0.15 \text{ N}}{10 \text{ N/kg}} \\ &= 0.015 \text{ kg} \end{aligned}$$

$$\begin{aligned} \text{Volume of displaced water} &= \frac{\text{mass}}{\text{density}} \\ &= \frac{15 \text{ g}}{1 \text{ g/cm}^3} \\ &= 15 \text{ cm}^3 \quad (\text{1 mark}) \end{aligned}$$

$$\begin{aligned} \text{Mass of displaced liquid} &= \rho V \\ &= 0.8 \text{ g/cm}^3 \times 15 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} \text{Weight of displaced liquid (upthrust)} &= 12 \text{ g} \\ &= 0.12 \text{ N} \end{aligned}$$

$$\begin{aligned} \Rightarrow \text{Apparent weight in liquid} &= \text{Weight in air} - \text{upthrust} \quad (\text{1 mark}) \\ &= 0.27 \text{ N} - 0.12 \text{ N} \\ &= 0.15 \text{ N} \end{aligned}$$

\therefore The apparent weight will be 0.15 N. (1 mark)

(ii) Density of sealing wax

$$\rho = \frac{\text{weight in air}}{\text{upthrust}} \times 1 \text{ g/cm}^3 \quad (\text{1 mark})$$

$$\begin{aligned} &= \frac{0.27 \text{ N}}{0.15 \text{ N}} \times 1 \text{ g/cm}^3 \\ &= 1.8 \text{ g/cm}^3 \quad 1800 \text{ kg/m}^3 \quad (\text{1 mark}) \end{aligned}$$

6 (b) (ii) The density of sealing wax is (2 marks)
 1800 kg/m^3

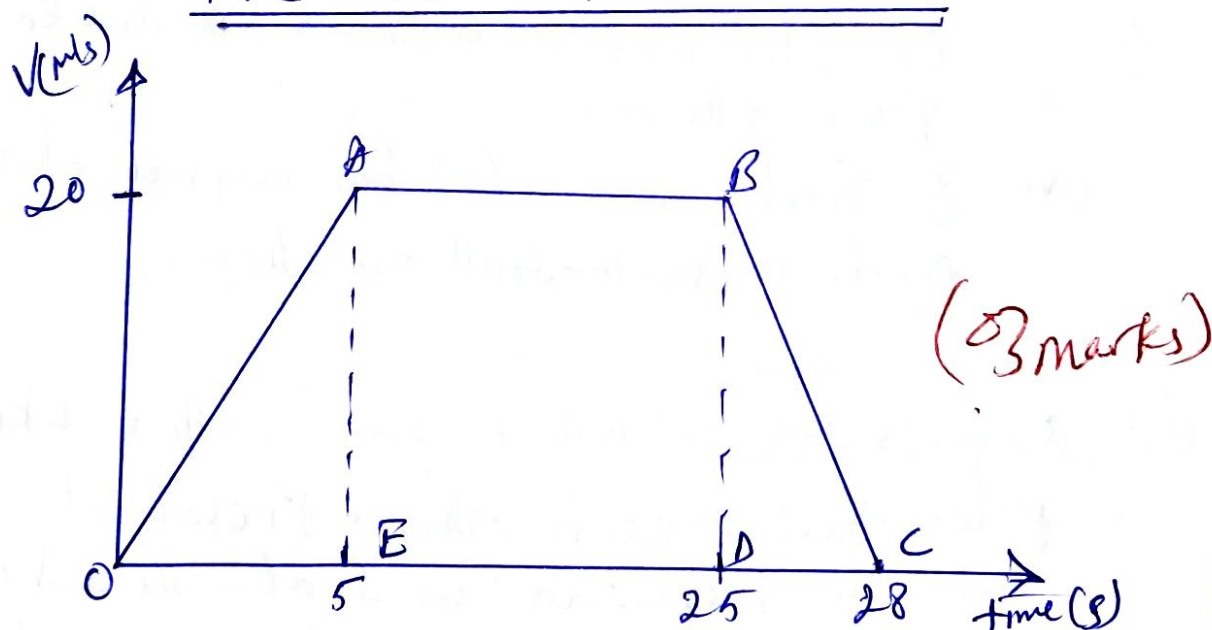
7 (a) (i) The represented motion is the motion of the accelerating body. (2 marks)

(ii) The curve represent acceleration (02 marks)

(b) Solution

$$\begin{aligned}\text{Maximum velocity} &= at \\ &= 4 \text{ m/s}^2 \times 5 \text{ sec} \\ &= 20 \text{ m/s} \quad (1 \text{ mark})\end{aligned}$$

THE VELOCITY-TIME GRAPH



$$\begin{aligned}\text{Total distance} &= \text{Area of the trapezium } OABCD \\ &= \frac{1}{2} (AB + OC) AE \\ &= \frac{1}{2} (20 + 28) 20 \\ &= 48 \times 10 \\ &= 480 \text{ m.}\end{aligned}$$

(1 mark)

$\therefore$ The total distance covered is 480 m. (1 mark)

8 (a) Properties of magnet and magnetism

(i) All magnets have two poles, the north and south pole.

(ii) Magnets exert a force on some materials and do not on others.

(iii) Magnets attract ferromagnetic materials such as iron, nickel and cobalt.

(iv) The magnetic force is an action at a distance force.

(v) In a bar magnet, more iron filings stick to the poles, meaning that the magnetic force is strongest near the poles of a magnet, and that the poles have equal strength.

(vi) When two magnets are brought together, like poles repel each other while unlike poles attract.

(vii) A freely suspended bar magnet always points in north-south direction.

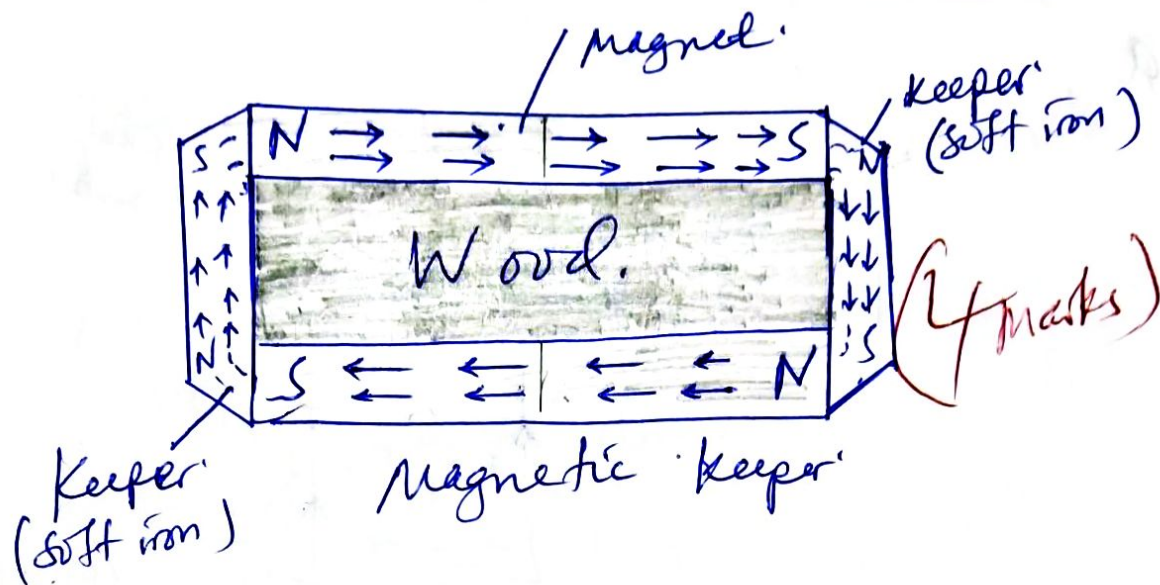
(b) Magnets are stored in pairs with unlike poles facing each other. Pieces of magnetic keepers are used at the ends to preserve the strength of the magnets. A magnetic keeper is a ferromagnetic bar placed to complete the loop of magnetic flux. See the figure below.

Any four

(1 mark @)

(2 marks)

(b)



Answer:

- 9 (a) After rubbing the comb with their hair, electrons were transferred from air to the comb and making comb to be negatively charged. The negatively charged comb exert electrostatic force of attraction on small pieces of paper and attract them. (2 marks)
- (b) Charges are transferred by friction from hair to the comb and makes the comb to be negatively charged.

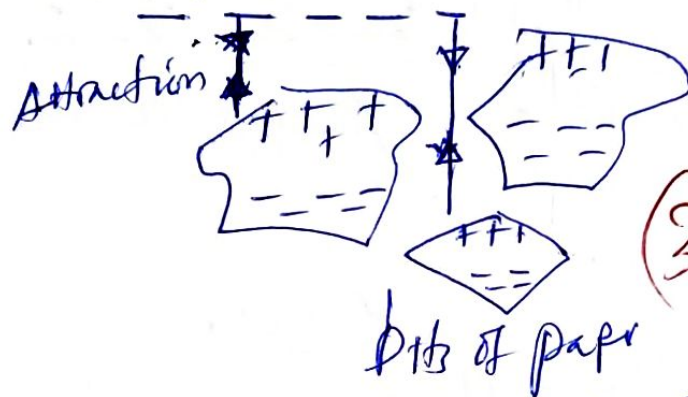
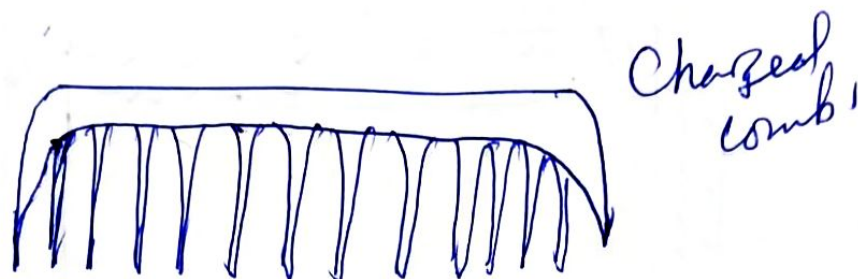
The negative charged comb repel the electrons in the bits of paper to the far side and positive charge to the side near the comb (induced polarisation)

The positively charged part of paper (1 mark) near the comb is attracted to the negatively charged comb and cling on it.

This demonstrate the fundamental principle of electrostatics i.e. ("Like charges repel unlike charges attract")

Any relevant explanation

9 (a) (ii)



(3 marks)

Demonstration of the principle of static electricity.

(b)

Solution

Data:

Capacitance (C)

$$= 3 \mu\text{F}$$

$$= 3 \times 10^{-6} \text{ F}$$

Charge (Q)

$$= 3.6 \times 10^{-5} \text{ C}$$

Voltage (V)

$$= ?$$

From Q

$$= CV \quad (1 \text{ mark})$$

V

$$= \frac{Q}{C}$$

$$= \frac{3.6 \times 10^{-5}}{3 \times 10^{-6}}$$

$$= \frac{3.6}{3} \times 10 \quad (2 \text{ marks})$$

$$= 120 \times 10$$

$$= 12 \text{ V}$$

(1 mark)

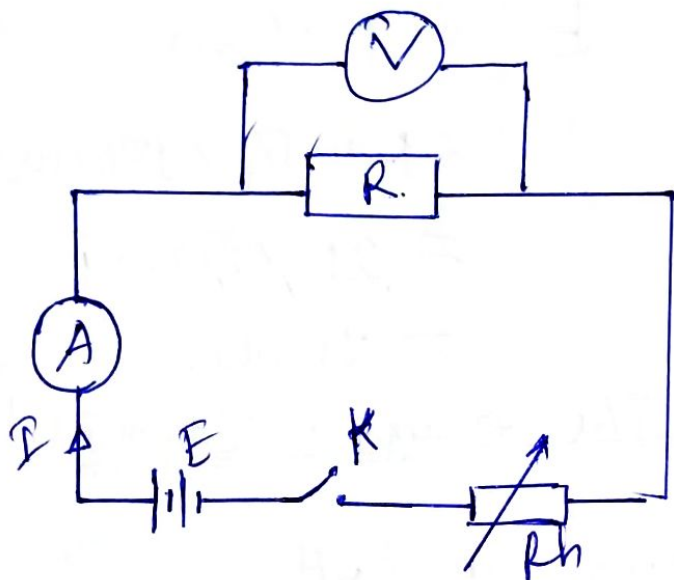
The potential difference is 12V.

SECTION C

10 (a)

Ammeter, cells, standard resistor^{key} and rheostat will be conned in series while a voltmeter will be connecte across (parallel) to the standard resistor. See the diagram below.

(5 marks)



(5 marks)

Verification of Ohm's Law

(b)

Solution

(i)

Data.

$$\text{Current (I)} = 10\text{A}$$

$$\text{Voltage (V)} = 120\text{V}$$

$$\text{Power (P)} = ?$$

$$\text{From } P = 5\text{V} \quad (2\text{ marks})$$

$$= 120 \times 10$$

$$= 1200\text{W}$$

$$= 1.2\text{Kw} \quad (2\text{ marks})$$

∴ The power consumption is 1.2 Kw

(1 mark)

10 (b) (ii)

$$\begin{aligned}\text{Time} &= 5 \text{ hours} \\ &= (5 \times 60 \times 60) \text{ sec.} \\ &= 180000 \text{ sec.}\end{aligned}$$

Energy in Joules. (1 mark)

$$E = P \times t (\text{sec.})$$

$$= 1200 \text{ J/s} \times 180000 \text{ s}$$

$$= 216,000,000 \text{ J}$$

$$= 216 \text{ MJ.}$$

$\therefore$ The energy is 216 MJ. (1 mark)

Energy in kWh.

$$E = 1.2 \text{ kW} \times 5 \text{ hours}$$

$$= 6 \text{ kWh. (units)}$$

$\therefore$ The energy used is 6 kWh. (1 mark)