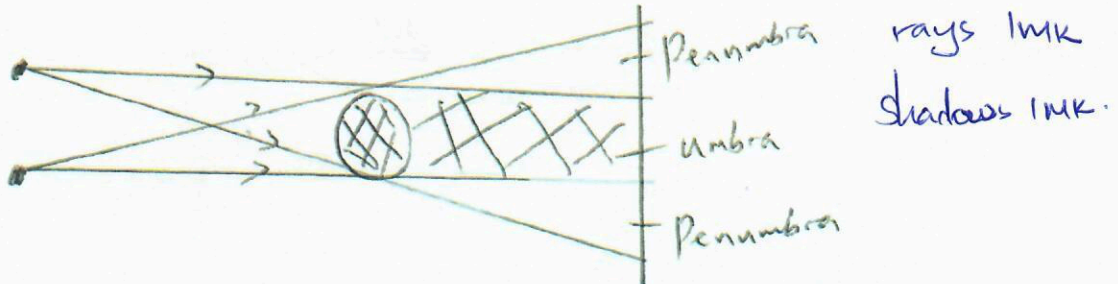


232/2
PHYSICS
FORM 3

MARKING SCHEME

1.



2. $52 - 10 = 42$

3. Divergence of charged decreases for neutral increases.

4.

- Test for presence, type or amount of charge.
- Test for conducting or insulating properties (any one)

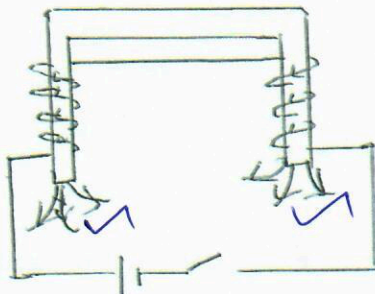
5. Eating away of zinc plate. Reduced by amalgamation or pure zinc.

6. $I = \frac{Q}{t} = \frac{4.5 \times 10^{-3}}{90} = 5.0 \times 10^{-5} \text{ A}$

7. Disarranges dipoles in domains.

8. Like poles repel while ^{un}like poles attract each other.

9. X N - pole
Y N - pole



$$10. d_1 = \frac{2.16}{2} \times 330 = 356.4\text{m}$$

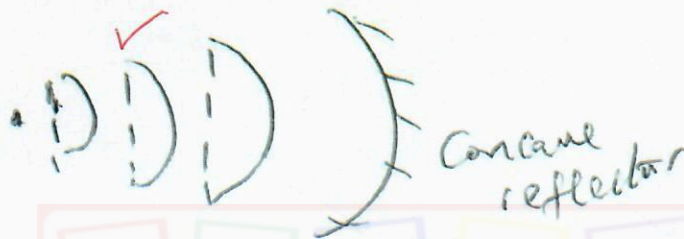
$$d_2 = \frac{4.75}{2} \times 330 = 783.75$$

total 1140.15m

$$11. H = Pt = 1500 \times 200 = 300,000\text{J}$$

12. Point where rays close and parallel to principal ^{axis} focus pass after reflection for concave mirror or appear to diverge from for convex mirror.

13.



SECTION B

14.

a) Diffraction

$$b) X = 40/5 = 8 \text{ cm}$$

$$V = \lambda f = 0.08 \times 50 = 4\text{m/s}$$

c) Increases

$$d) (1500 \times 0.9) - (1500 \times 0.6) = 1350 - 900 = 450\text{m}$$

$$\text{or } \frac{1.8 - 1.2}{2} \times 1500 = 450\text{m}$$

e)

Same speed

Same frequency

Same amplitude

$$f) 3.5\lambda = 7\text{m}$$

$$\lambda = 2\text{m}$$

15.

- a) The ratio of sine of angle of incidence to sine of angle of reflection is constant for a given pair of media.

b) $1.5 = 15/\text{App}$ ✓
 $\text{App} = 10\text{cm}$ ✓
 Vertical displacement = $15 - 10 = 5\text{cm}$ ✓
 Or $d = 4(1 - 1/n) = 15(1 - 1/15) = 5\text{cm}$ ✓

c) (i) $N = c/v = \frac{3.0 \times 10^8}{1.94 \times 10^8} = 1.5464$ ✓

(ii) $n = 1/\sin c$ ✓
 $\sin c = 1/1.5464 = 0.6467$ ✓
 $C = 40.29^\circ$ ✓

- d)
- Ray moves from optically denser medium to less dense medium ✓
 - Critical angle must be exceeded. ✓

e) $4/3 \sin 30^\circ = 3/2 \sin Q$ ✓
 $\sin Q = 0.4444$ ✓
 $Q = 26.39^\circ$ ✓

16.

- a) Current flowing through a conductor is directly proportional potential difference across ends provided temperature and other physical conditions remain constant. ✓

b)

(i) $\frac{5 \times 10}{15} = 3.333$ ✓ $RT = 4 \times 3.333 = 7.333\Omega$ ✓

(ii) $\frac{12 \times 4}{7.333} = 6.546 \text{ v}$ ✓

(iii) $1 = \frac{5.454}{10} = 0.5454\text{A}$ ✓

c) $(3.0 - 2.8) = 1r$ ✓
 $r = \frac{0.2}{0.5} = 0.4\Omega$ ✓

17.

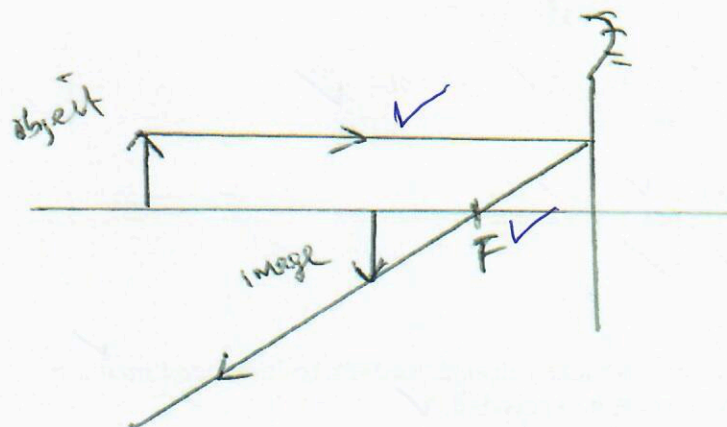
a) $3 + 1 = 4$ ✓
 $\frac{4 \times 4}{8} = \frac{16}{8} = 2 \text{ uf}$ ($2 \times 10^{-6}\text{F}$) ✓

b) $Q = CV$ ✓
 $= 2 \times 12 = 24 \text{ uc}$ ($2.4 \times 10^{-5}\text{c}$) ✓

c) $\frac{3}{4} \times 24 = 18 \text{ uc}$ ✓

d) $V = 6/1 = 6\text{v}$ ✓

18. a)



b) $-\frac{1}{f} = \frac{1}{u} - \frac{1}{v}$ ✓

$\frac{1}{u} = \frac{1}{3} - \frac{1}{5} = \frac{5-3}{15} = \frac{2}{15}$ ✓

$U = 7.5 \text{ cm}$ ✓

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