JULY/AUGUST 2026

PHYSICS

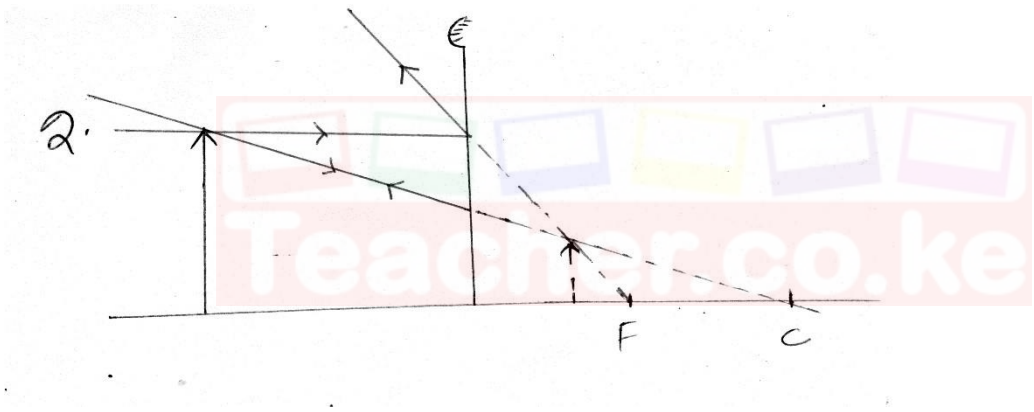
PAPER 2

MARKING SCHEME

1. A - microwave ✓1

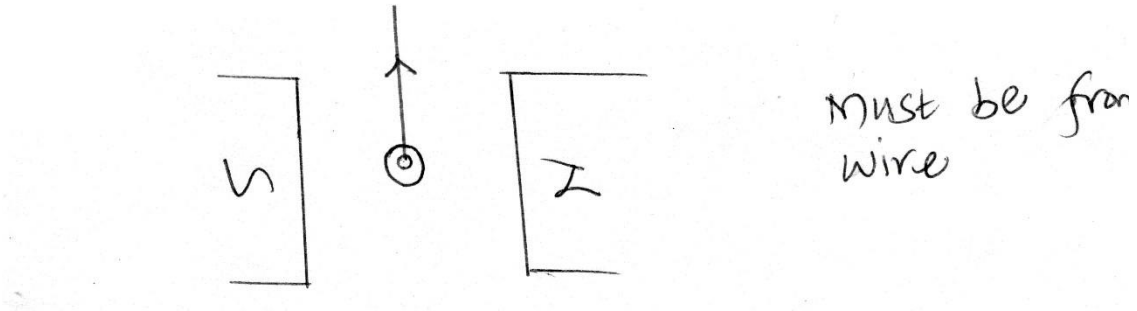
   B - for vision✓1

2.



Correct image; correct rays

3. (a)



(b) moves on the opposite side. ✓1

4 $\frac{h_i}{h_o} = \frac{V}{U}$✓

$h_o = \frac{0.025 \times 300}{0.2}$ ✓

$= 37.5$ m✓

5. $\frac{Ns}{Np} = \frac{Vs}{Vp}$

$\frac{5}{10} = \frac{Vs}{12}$✓1

Vs=6V✓1

6 i) like poles repel, unlike poles attract✓1

ii) Magnetic keepers become magnetized by induction; ✓1

keep dipoles aligned in a continuous loop of N-S poles pair✓1

7.the ratio of sine of angle of incidence to the sine of the angle of refraction is the same/constant for a given pair of media. ✓1

λ

8. no. of cycles = 2.75 or $2\frac{3}{4}$

Frequency= $\frac{no.\ of\ cycles}{time} = \frac{2.75}{0.02}$✓1

$= 137.5\ Hz$✓1

9. f =V/ λ and f1= f2 $\frac{v1}{\lambda 1} = \frac{v2}{\lambda 2}$

2/1=V_2/0.4✓1

V_2=0.8m/s✓1

10. 90-35=55° ✓1

11.White light is made up of seven colours; ✓1 which travel at different speed/ wavelength in the glass prism and hence dispersion✓1

12. 2d= speed x time✓1

2d= 1600 x 2.4✓1

d= $\frac{1600\ x\ 2.4}{2}$ = 1920 m✓1

13. positive charges ✓1

14.(a) (i) Argon – to initiate the discharge. ✓1

(ii) Quenching agent. Absorb energy of positive ions before they cause secondary electron emission. ✓1

iii). Using an amplifier✓1

iv) a = 226✓1

b=88✓1

15. (a) (i) to provide heat for thermionic emission✓1

(ii) to create high pd for the anode which acts as accelerating voltage for ejected Electrons ✓1

(b) Increasing heater current to produce more electrons✓1

(c) **air undergoes ionization** due collision with cathode rays ; ✓1 or and resulting **electrons have less kinetic energy**✓1

(d) posses kinetic energy✓1 travel in straight lines

(e) X-rays-formed have no charge while cathode rays are negatively charged✓1

Any 1correct answer

X rays are faster than cathode rays

X-rays are waves while cathode rays are particulate/ particles

X-rays are more energetic than cathode rays

(f) can measure both ac and dc voltages✓1 *(any 1correct answer)*

can measure larger voltages (g) (i) T=5x4=20ms

f=1/T=1/0.02✓1

f=50Hz✓1

(ii) V=10x4✓1 =40V✓1

16. (a) (i) electron emitted are repelled by the negative charges, so the leaf of electroscope fall✓1

(ii) electron emitted are attracted by the positive charged✓1

(iii) its energy is lower than the energy need to dislodge an electron from a metal surface/Work function✓1

(b) (i). increase in the number of emitted electrons✓1

(ii) speed /KE of electrons increases✓1

(c) (i) $E=hf = h\frac{c}{\lambda}$

$(6.63x10^{-34}x3.0x10^{8})/(4.3x10^{-7})$ ✓1

$=4.6256x10^{-19}J$✓1

(ii) Potassium, lower work function an also less energy than energy of radiation

(iii) $KE = \frac{1}{2}mv^2$

$v^2= (2x\ 0.9456x10^{-19})/(9.1X10^{-31})$

$v=4.559X10^{5}m/s$

17. a)

(i) A circuit which is not delivering current; ✓1

(ii) A circuit which is delivering current; ✓1 b(i) Total resistance=

0.5□ 0.3□□□ ___3□6 □□

□ 6 □ 3□

□0.3□0.5□2□□ 2.8□;✓1

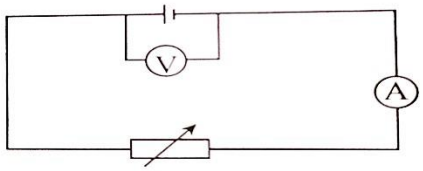
$\overline{V}$ □6.6□ $2.357A$;

□I □ □□ □□

R □ 2.8□ ✓1

$I^{3\Omega} = \frac{6}{9} \times 2.357 = 1.571$ A✓1

ii)



iii) E.m.f=voltage intercept =9.6V; ✓

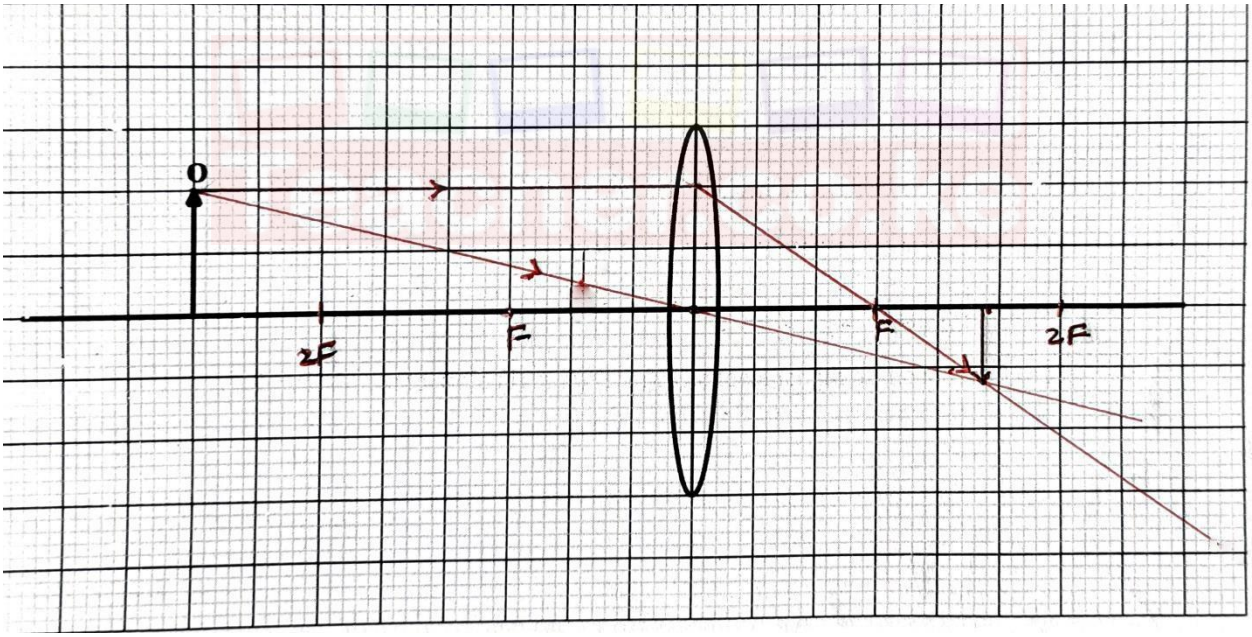
iv) Internal resistance = slope;

-r = slope✓1

$$-r = \frac{6-0}{2-5.4} = \frac{6}{-3.4} = -1.778\Omega\checkmark 1$$

$$r = 1.778\Omega\ \checkmark 1$$

18 a) correct rays✓1 correct image✓1



b) u = 8 cm v= 4.7$\pm$ 0.1 cm

$$m = \frac{4.7}{8} = 0.5875\checkmark 1\checkmark 1$$

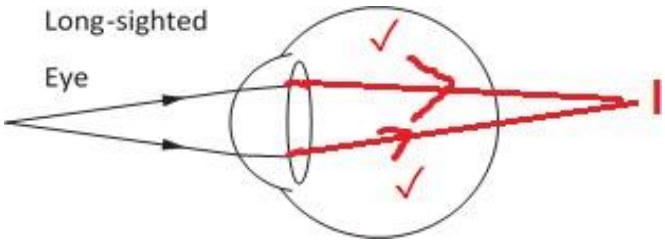
OR

$$m = \frac{4.6}{8} = 0.575\checkmark 1\checkmark 1$$

OR m= $\frac{4.8}{8} = 0.6\checkmark 1\checkmark$ $\boldsymbol{m}$ =

0.5875 to 0.6

c)



19. a) **i) Step - down transformer; the power is to be stepped-down for domestic use✓**

ii) $\boldsymbol{Water\ heater = 2kW \times 2 \times 30 \times 9.50}$

$\boldsymbol{= 1140}$ ✓

$\boldsymbol{Electric\ bulb = 0.075 \times 10 \times 30 \times 9.5}$

$\boldsymbol{= 213.75}$

$\boldsymbol{Iron\ box = 1.5 \times 1 \times 30 \times 9.5}$

$\boldsymbol{= 427.5}$ ✓

$\boldsymbol{Total\ cost} = 1140+213.75+427.5 = \boldsymbol{Kshs.\ 1781.25}$✓

b) i) B-live wire /plug✓

ii) To open both the neutral and the live hole✓

or

To earth the appliance before the user uses it just in case there is a current leak ✓

c)) i) The ring mains circuit✓[1] ii) X – Neutral ✓[1] Y – Live ✓[1] iii) Disconnecting the circuit✓[1] or breaking the circuit✓[1] or opening the circuit✓[1]

(any one)

END