KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

MANG'U HIGH SCHOOL
232/1
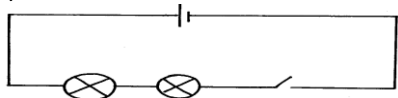**PHYSICS**
PAPER 2
MARKING SCHEME

MANG'U HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2
MARKING SCHEME

1. When a magnet s strongly heated, the dipoles have an increased vibration that cause them to get dis aligned leading to demagnetization.

2. a)

Cells in series
Bulbs in series

b) Bulbs can not be put off independently.
Increased resistance leads to low current (less brightness)
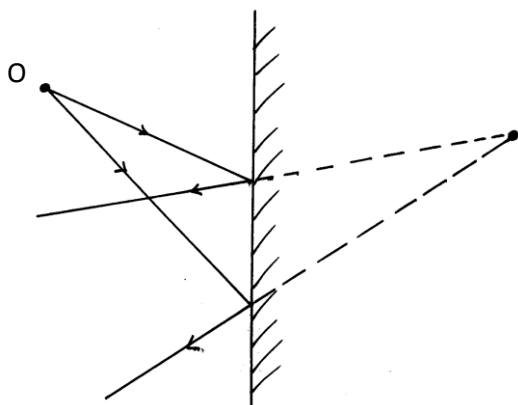Some bulbs would be very bright other dim.

3. Pressure; P=V1

$$1 = \frac{P}{V} = \frac{3000}{240}$$

$$= 12.5 \text{ A}$$

4. Local action occurs when zinc metal is eaten away by the acid.
Its minimize by amalgamation

5.

- Two rays
- Virtual rays

6. Total p.d = 8v (same p.d across equal resistors)
Effective resistance Re = 20 Ω

$$I = \frac{V}{\text{Re}} = \frac{8}{20} = 0.4$$

7. - Short sightness(mypia)
   - Use diverging lenses

8. $\gamma = \dfrac{v}{f}$

$$= \frac{3.0 \times 10^8}{100}$$

$$= 3.0 \times 10^6 m$$

9. $\dfrac{1}{1.47}$

$$= 0.68$$

10. - Number on tums
    - Amount of current
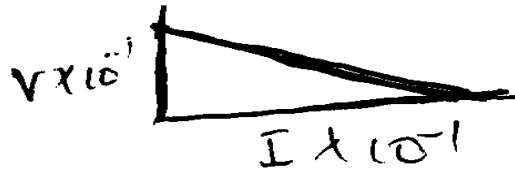   - Shape of the core
    - Length of the coil

11.

$$R = \frac{eL}{A}$$

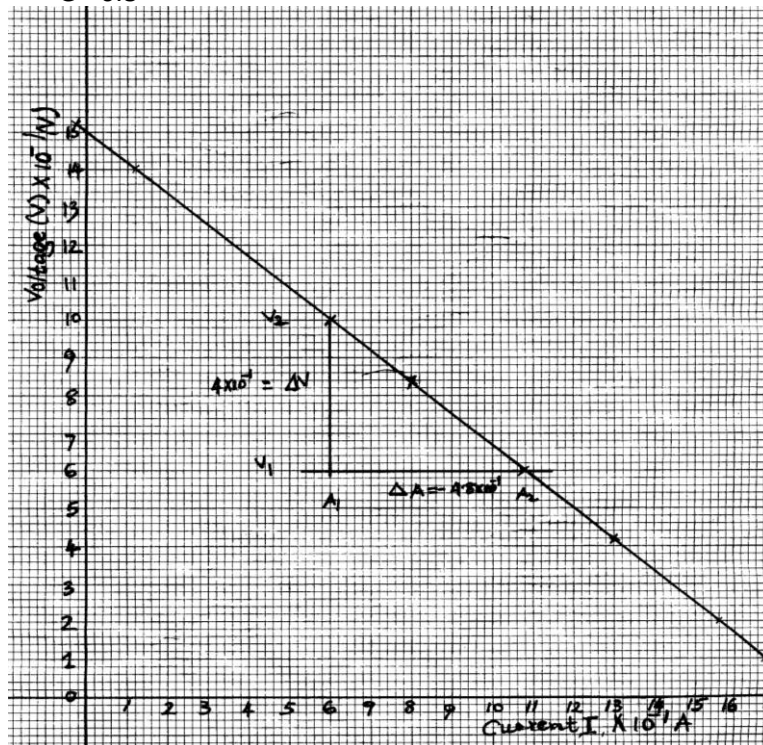$$= \frac{2M \times 10^{-6} \Omega m}{1 \times 10^{-8} m^2}$$

$$= 2 \times 10^2 \Omega$$

12. a)   Temperature
Length of conductor
Cross sectional area of the conductor

b)   i)   Intercept on axis=1.5V,this is obtained by extra polating the straight line until the pt.touches th y-axis.

ii)   For any correctly picked joints from the graph
G=-0.8

c)   10+2=12 Ω
25+5 = 30 Ω
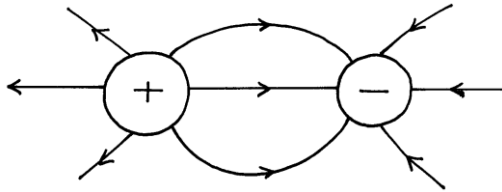The two pain are in parallel

$$R = \frac{product}{sum}$$

$$= \frac{12 \times 30}{12 + 30}$$

$$= 8.57 \Omega$$

13   a)   This is due to an electric wind set up by the high concentration of charges at the sharp point. Air is ionized and likes repel.

b)   -   Test for the sign of charge
-   Test for the quality of charge on a body
-   Testing insulation property of a body
-   Tests presence to charge

c

d)   Trees act as sharp points and provide a trail of water vapour that provides a conducive path for electric discharge during lighting.

e)   i)   Divergence increases capacitance decreases in area of overlap.
       ii)   Paraffin wax acts as a dielectric this increases the capacitance, hence V decreases and therefore falls.
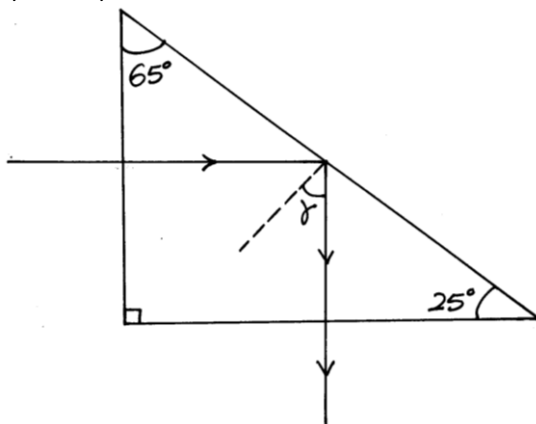
14.   a)
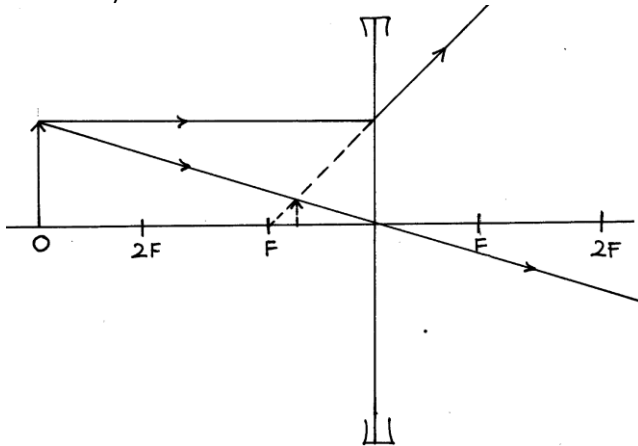
Virtual image

Image distance =7.25cm

Any two correct rays

Nature of image

-Diminished

-Erect

b)   i)

ii)

$$SinC = \frac{1}{n}$$

$$n = \frac{1}{\sin C}$$

$$= \frac{1}{\sin 42^0}$$

$$= 1.492^0$$

$$= 1.494$$

$$= 1.5$$

c)   f = -15cm
       v = -8cm
       u = ?

$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$$

$$\frac{1}{u} = \frac{1}{f} - \frac{1}{v}$$

$$= \frac{-1}{15} + \frac{1}{8}$$
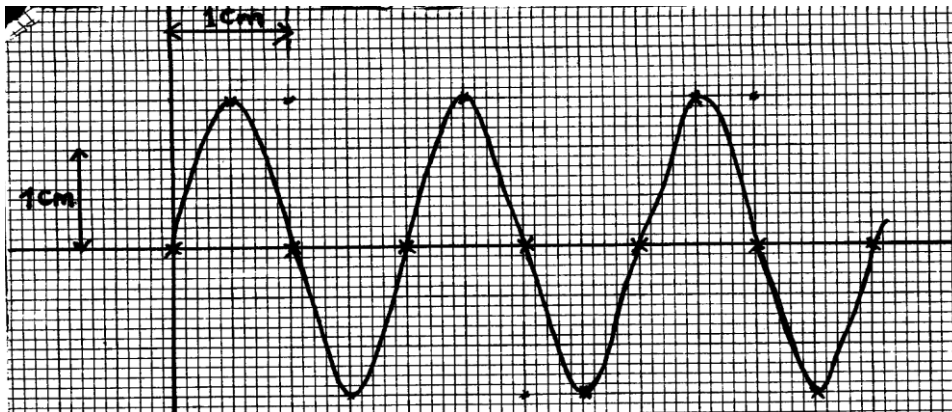
$$= \frac{1}{8} - \frac{1}{15}$$

$$= \frac{15 - 8}{120}$$

$$\frac{1}{9} = \frac{7}{120}$$

$$u = \frac{120}{7}$$

$$= 17.14 cm$$

15.

a) Peak voltage = sensitivity x No. of divisions
= 10 x 1.5
= 15V

b)
$$2 \times 0.2 m/cm$$

$$= 0.4 ms$$

$$T = 0.4 \times 10^{-3} s$$

$$f = \frac{1}{T}$$

$$= \frac{1}{0.4 \times 10^{-3}}$$

$$= \frac{1 \times 10^4}{4}$$

$$= 2500 H_2$$

c)   -   Has infinite resistance
      -    Measure with d.c and a.c voltages
      -    Not affected by inertia
      -    Can measure large voltages

d)   -   Conductivity electrons to the ground

- Shielding beam from external electric fields
- Accelerating electrons towards the screen.

16. a) P- filament/ cathode

Q- metal target.

b) i) No effect

ii) Wavelength increase

c)

$$E = hf, E = \frac{1}{2}mr^2$$

$$\frac{1}{2}mv^2 = \frac{20}{100}hf_0$$

$$\sqrt{}^{-2} = \frac{2hf_0}{5m}$$

$$\sqrt{} = \sqrt{\frac{2hf_0}{5m_2}}$$

$$= \sqrt{\frac{2 \times 6.63 \times 10^{-34}}{5 \times 9.1 \times 10^{-31}}}$$

$$= \sqrt{2.914 \times 10^{-2}}\, m/s$$

$$= 1.707 \times 10^{-1}\, m/s$$

d) i) P= IV

= 50000 X 2.0 x 10^{-2}

= 1000w

ii)

$$n = \frac{I}{e}$$

$$= \frac{2.0 \times 10^{-3}}{1.6 \times 10^{-19}}$$

$$= 1.25 \times 10^{17} e$$

iii)

$$\frac{1}{2}mr^2 = ev$$

$$\sqrt{} = \sqrt{\frac{2eV}{Me}}$$

$$= \sqrt{\frac{2 * 50000 \times 1.6 \times 10^{-19}}{9.1 \times 10^{-31}}}$$

$$= \sqrt{1.8 \times 10^{-16}}$$

$$= 1.33 \times 10^8\, m/s$$