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**KENYA NATIONAL EXAMINATION COUNCIL**  
**REVISION MOCK EXAMS 2016**  
**TOP NATIONAL SCHOOLS**

**MANG'U HIGH SCHOOL**

**232/1**

**PHYSICS**

**PAPER 3**

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**MANG’U HIGH SCHOOL KCSE TRIAL  
AND PRACTICE EXAM 2016  
Paper 3 (PRACTICAL)**

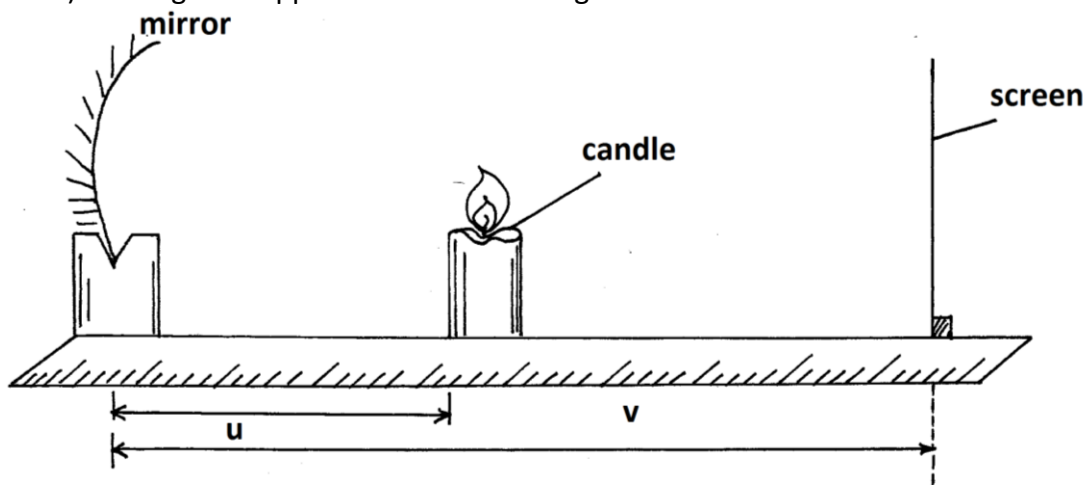
**1. PART A**

You are provided with the following apparatus

- Concave mirror and a holder
- Meter rule
- Candle ( about 7cm)
- White screen

a) Determine the focal length of the mirror by focusing a distant object  
f = \_\_\_\_\_ (1mk)

b) Arrange the apparatus as shown in figure 1 below



c) Place the candle at a distance  $u = 22\text{cm}$  from the mirror. Move the screen along the meter rule until a sharp image is formed on the screen. Measure and record the image distance  $V$ .

d) Repeat the experiments for other values of  $u$  and record your result in table 1 below..

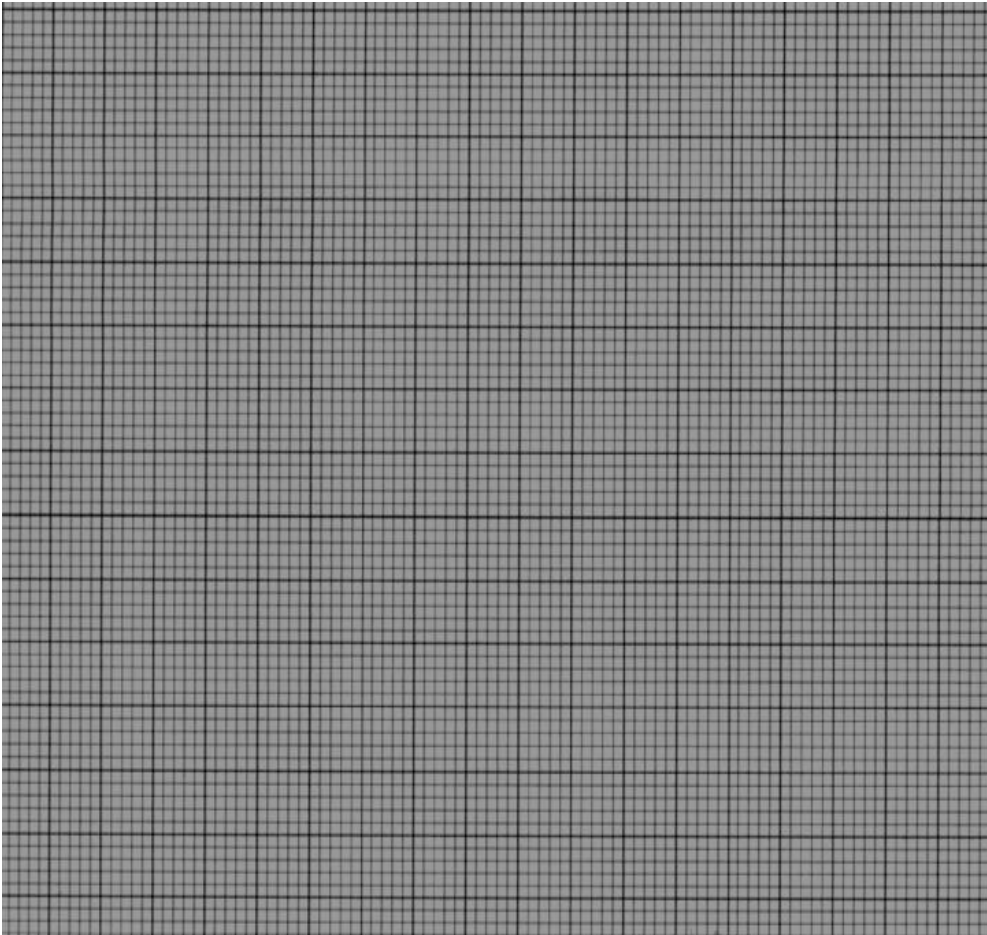
Object distance $u(\text{cm})$	22	24	26	28	30	32	34
Image distance $V$ ( cm)							
Magnification ( $v/u$ )							

( 6mks)

e) Plot a graph of magnification ,  $m$ (y-axis)against image distance  $v$

( 5mks)

f) Given that  $m = \frac{v}{f} - 1$ . Determine the focal length,  $f$ .



**Part B**

You are provided with the following apparatus

- A voltmeter 0-3 or 0-5v
- An ammeter ( 0-1A)
- $10\Omega$  resistor ( fixed)
- A switch
- One dry cell and a cell holder
- Six connecting wires

a) (i) Connect the above apparatus as shown in the circuit diagram below with the switch s open.

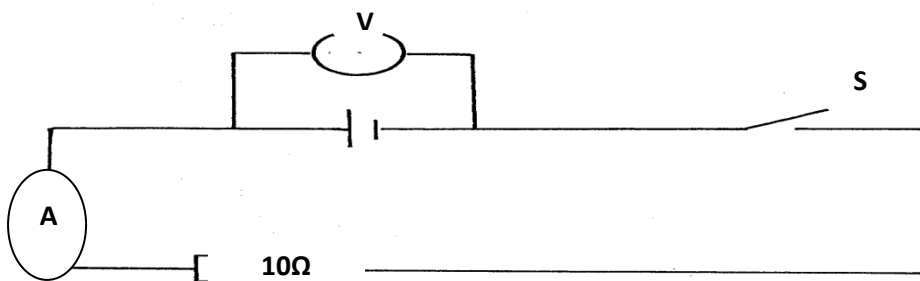


Figure 2

ii) With the switch S open, record E the voltmeter reading (1 mk)

E =

iii) Close the switch and record V, the voltmeter reading and I the ammeter reading

$v =$   
 that  $E - V = Ir$ , Find  $r$  the fro the dry cell.

(1mk)

I iv) Given

( 2mks)

### Question 2

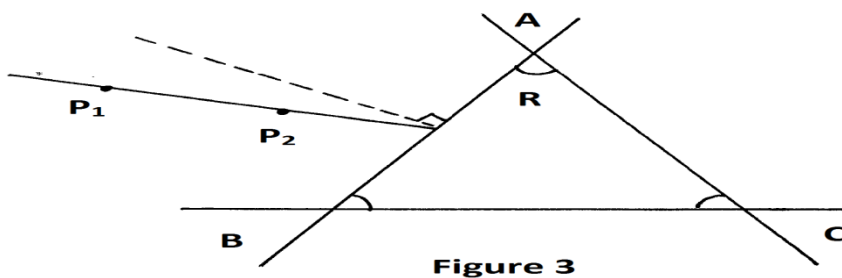
#### Part A

You are provided with the folowng

- A triangular prism
- A piece of soft board
- Four ( 4) optical pins
- A sheet of plain paper
- Thumb pins

Proceed as follows:

- a) Place the plain sheet of paper on the soft board . Trace the triangular outline of the prism on the sheet of paper. Remove the prism and use a ruler to extend the three sides of the outline



Use a protractor to measure the refracting angle  $R$  of the prism.

$R =$  ( 1mk)

- b) On the side  $AB$  of the triangular prism outline,. Draw a normal at a point half-way between  $A$  and  $B$ . ( This normal will be used for the rest of the experiment).
- c) Draw a line at an angle  $i - 30^\circ$  to the normal. Stick two pins  $P_1$  and  $P_2$  vertically on this line. See figure 3 above.
- d) Place the prism accurately on the outline. By viewing through the prism from side  $AC$ . Stick two other pins  $P_3$  and  $P_4$  vertically such that they are in line with the images of pins  $P_1$  and  $P_2$ . Remove the prism and the pins. Draw a line joining marks made by  $P_3$  and  $P_4$  . Extending this line to meet  $AC$ . See figure 4 below.

Measure and record in tale 2 below the value of angle  $o$

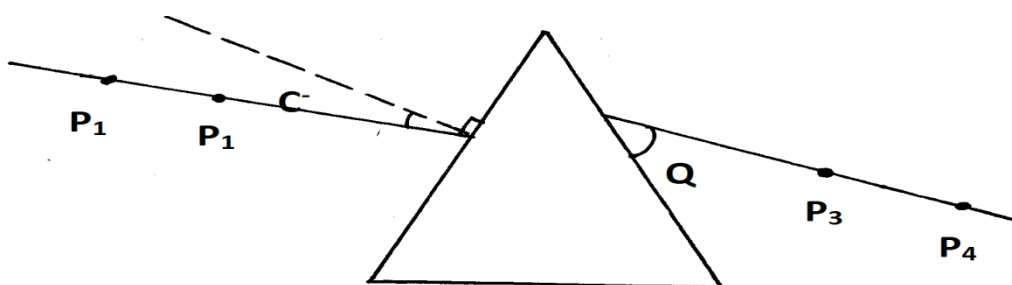


Figure 4.

e) Repeat the procedures in © and (d) above for other values of  $i$  shown in table 2. Complete the table.

Table 2

Angle of incidence $i$ (degree)							
Angle $\phi$ ( degree							
Angle of emergence $E = 90 - \phi$ (deg)							

( 6mks)

F) On the grid provided plot the graph of the angle of the emergency  $E$ (yaxis) against the Angle of incidence  $i$  (5mks)

ii) Use the graph to find  $i$ (the angle of incidence at which  $i=E$ ) ( 1mk)

( The teacher to collect the plane papers used for this experiment showing how the  $\phi$  is got.).

**PART B**

You are provided with the following

- Meter rule
- Report stand, clamp and boss
- 500ml beaker  $\frac{3}{4}$  full of water
- 100g mass
- 50g mass
- Three pieces of thread

Proceed as follows

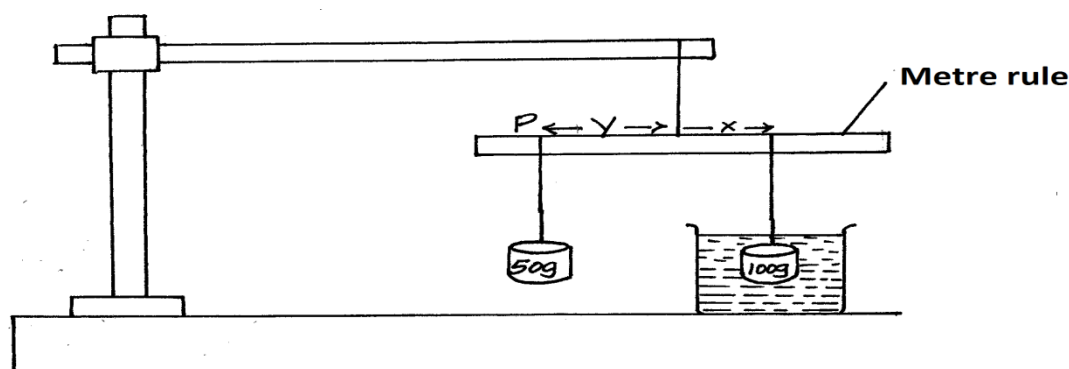
a) Balance the meter rule horizontally by suspending it from the stand and clamp with one of the threads . Record the balance point  $G$ .

$G =$  (cm) ( 1mk)

b) 9) Suspend the 100g mass from the meter rule at a point  $x$  such that  $x = 10\text{cm}$  from point  $G$ . With 100g mass completely immersed in water in the beaker, hang the 50 g mass from the meter rule and adjust its position until the system is in equilibrium as shown in the diagram below.

Note the point of suspension  $P$  of the mass ( 50g)

$P =$ ..... ( 1mk)



ii) Find the value of  $Y$ .

$Y$  (1mk)

(iii) Using the information above, calculate the up thrust on the 100g mass if the density of water is  $1000\text{kg/m}^3$ . (3mks)