NAME:……..……..INDEX NO:……

CANDIDATE'S SIGNATURE……

DATE…….

232/2
PHYSICS
PAPER 2
JULY/AUGUST 2008
TIME: 2 HOURS

MOLO DISTRICT MOCK EXAMINATION
Kenya Certificate of Secondary Education 2008

232/2
PHYSICS
PAPER 2
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INSTRUCTION TO CANDIDATES

- *Write your name and index number in the spaces provided above.*
- *Sign and write the date of examination in the spaces provided*
- *This paper consists of TWO sections A and B*
- *Answer ALL the questions in sections A and B in the spaces provided*
- *ALL working MUST be clearly shown in the spaces provided in this booklet*
- *None programmable silent electronic calculator and KNEC Mathematic tables may be used except where stated otherwise.*

FOR EXAMINERS USE ONLY

Section	Question	Maximum Score	Candidate's Score
A	1- 13	25	
B	14 15 16 17 18	12 10 10 10 13	

This paper consists of 11 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.

SECTION A: (25 MARKS)
Answer ALL the questions in this section in the spaces provided

1. Define a non-ohmic conductor (1mk)

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2. State the property of light associated with formation of shadows (1mk)

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3. State two uses of microwaves. (2mks)

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4. The force on a conductor carrying an electric current in a magnetic field can be varied by changing the magnetic field strength and the magnitude of the current. Name two other factors that can affect the force. (2mks)

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5. Figure 1 below shows a soft iron rod placed between two poles of a magnet

Fig.1

On the same figure sketch the magnetic field lines between the poles. (2mks)

6. (a) Explain why an x-ray tube is evacuated. (1mk)

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(b) Distinguish between 'hard and soft' x – rays (1mk)

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7. An electric kettle is rated 3KW, 250V. Determine the resistance of the coil. (3mks)

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8. **Figure 2** below shows the path of light through a transparent material placed in air.

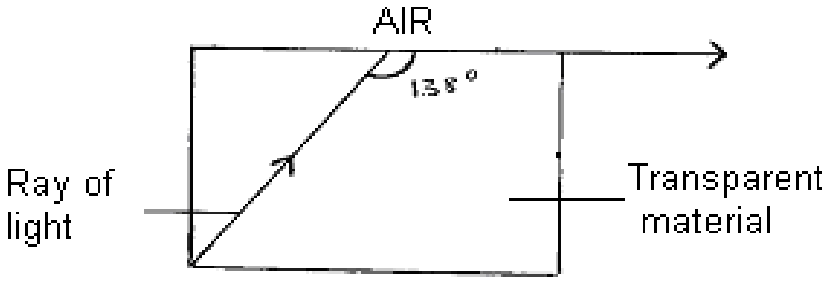

Fig.2

Calculate the refractive index of the transparent material. (3mks)

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9. **Calculate** the wavelength of Green light whose energy is 3.37×10^{-19} J.
((h = 6.63×10^{-34}JS, C = 3.0×10^{8} m/s) (3mks)

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10. **State** the function of the grid in a cathode ray tube (CRT) (1mk)

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11. **Figure 3** below shows a laclanche cell.

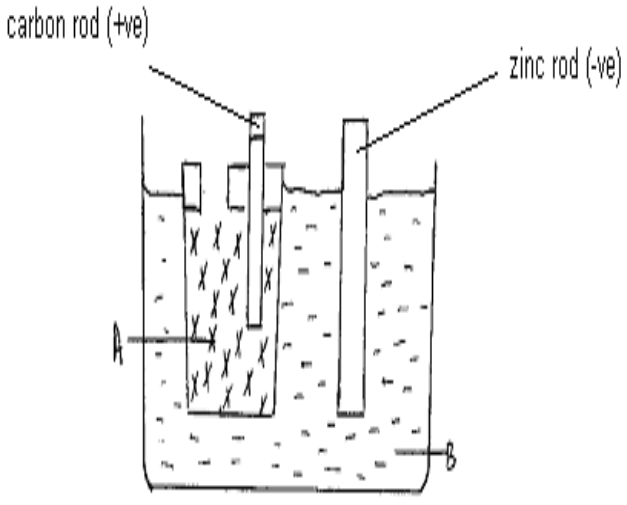

Fig.3

Name the chemical substances in the parts labeled.

A .....

B ..... (2mks)

12. **Figure 4** below shows a highly charged needle bought near a candle flame

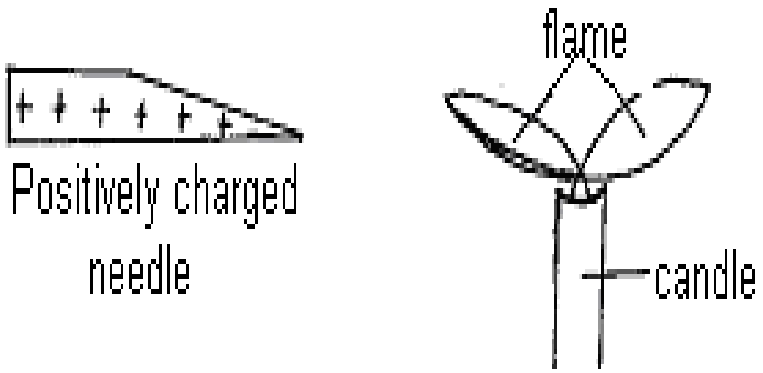

Fig.4

Explain why the flame burns in the direction shown (2mks)

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13. State the major difference between a dry cell and a wet cell (1mk)

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SECTION B; (55 MARKS)

Answer ALL Questions in this section in the spaces provided

14. (a) **Figure 5** below shows the diagram of a Geiger – Muller tube connected to a power supply and a pulse counter.

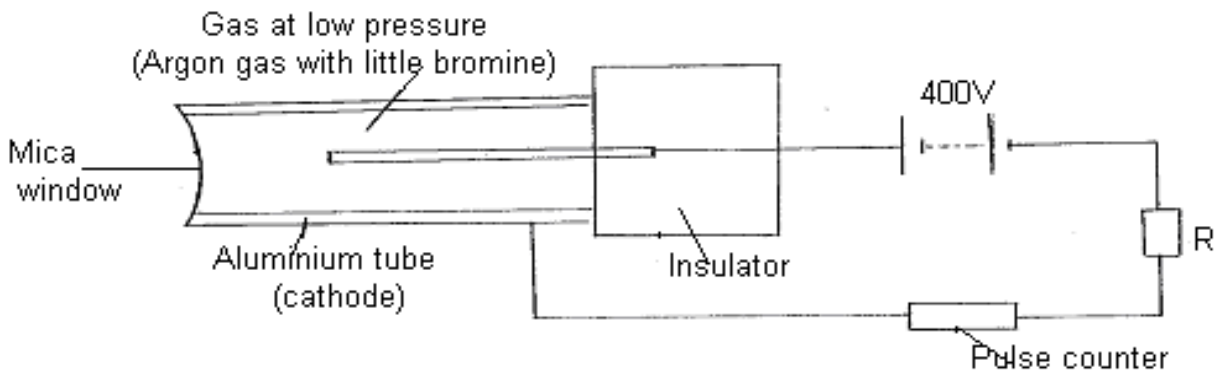

Fig. 5

(i) Why should the Argon gas be at low pressure? (1mk)

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(ii) Briefly explain how the Geiger – Muller tube detects the radiation emitted by a radioactive. (4mks)

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(iii) State the purpose of the bromine gas in the tube (1mk)

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(iv) Suggest one way of increasing the sensitivity of the tube (1mk)

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(v) Find the value of a and b up the following equation (2mks)

$$^{234}_{92}U \qquad ^{a}_{b}X + 2\alpha$$

a =.....

b =.....

(b) i) Explain how the resistance of semi-conductors and metal conductors are affected by temperature rise. (2mks)

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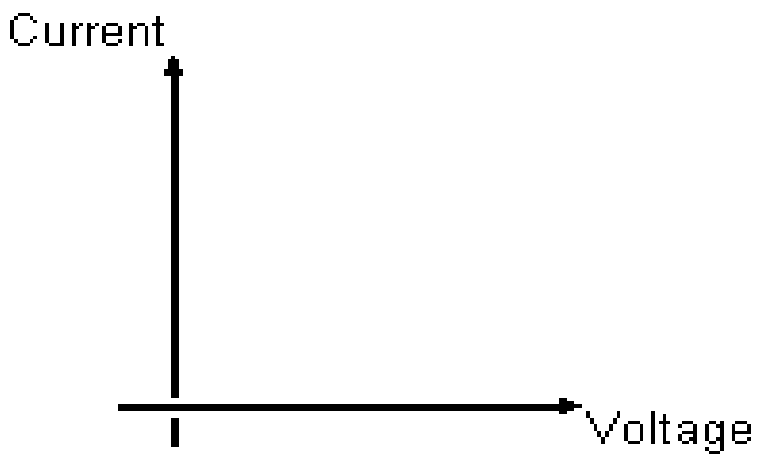
(b) ii) Sketch a forward bias characteristic of a P – N junction diode in the axis below. (1mk)



15. (a) Explain why a concave mirror is used as a shaving mirror (1mk)

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(b) You are provided with a metre rule, distant object, concave mirror and a white screen. Briefly describe how you can estimate the focal length of the focal length of the concave mirror.(3mks)

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(c) **Figure 6** below shows a real image formed by a convex lens.

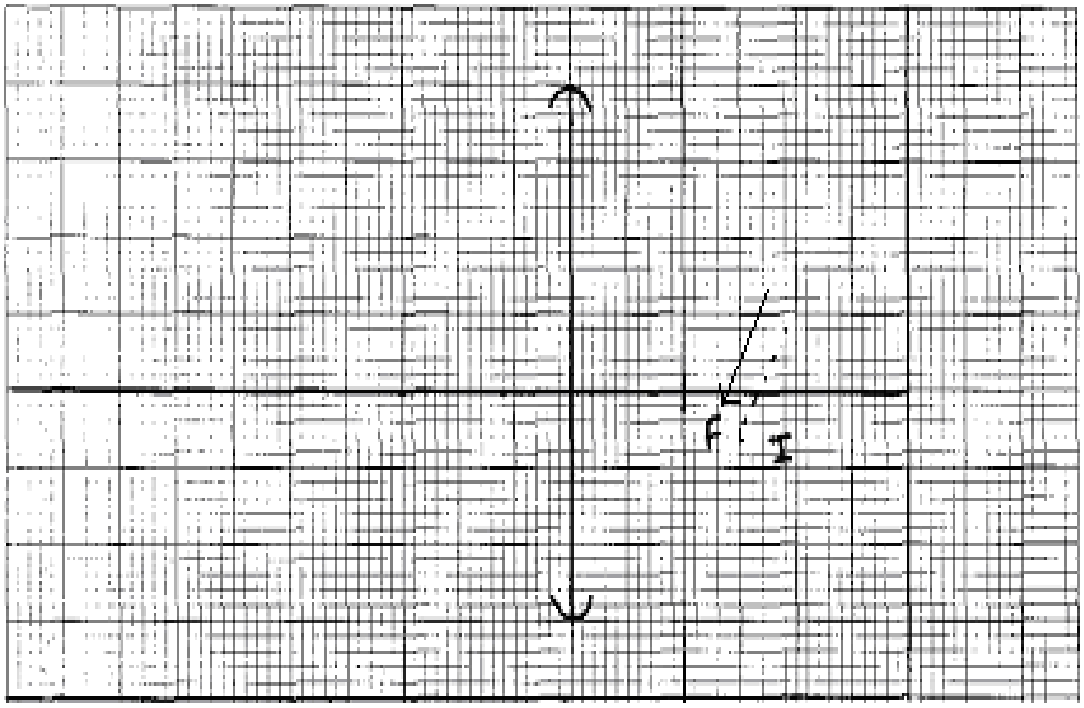

Fig.6

On the same grid, construct a ray diagram to locate the position of the object (3mks)

(d) A convex lens forms an image five times the size of the object on a screen. If the distance between the object and the screen is 120cm, determine the focal length of the lens. (3mks)

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16. (a) State one cause of energy losses in a transformer and explain how it can be minimized. (2mks)

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(b) A transformer is designed to supply a current of 5A at a potential difference of 50V to a motor from an a.c supply of 240V. If the efficiency of the transformer is 80%.:**Calculate**

(I) The power supplied to the transformer (3mks)

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(II) The current in the primary coil (2mks)

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(c) **Figure 7** shows a cross –section of a bicycle dynamo. The wheel is connected by an axle to a permanent cylindrical magnet and is rotated by the bicycle tyre.

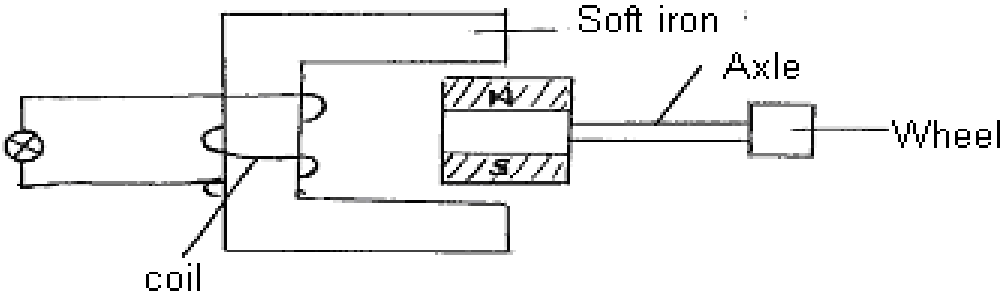

Fig.7

(I) Explain why the bulb lights (1mk)

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(II) How can the bulb be made brighter? (1mk)

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17. (a) State two differences between sound waves and electromagnetic waves (2mks)

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(b) **Figure 8** below shows a waveform of a wave moving at velocity of 2m/s.

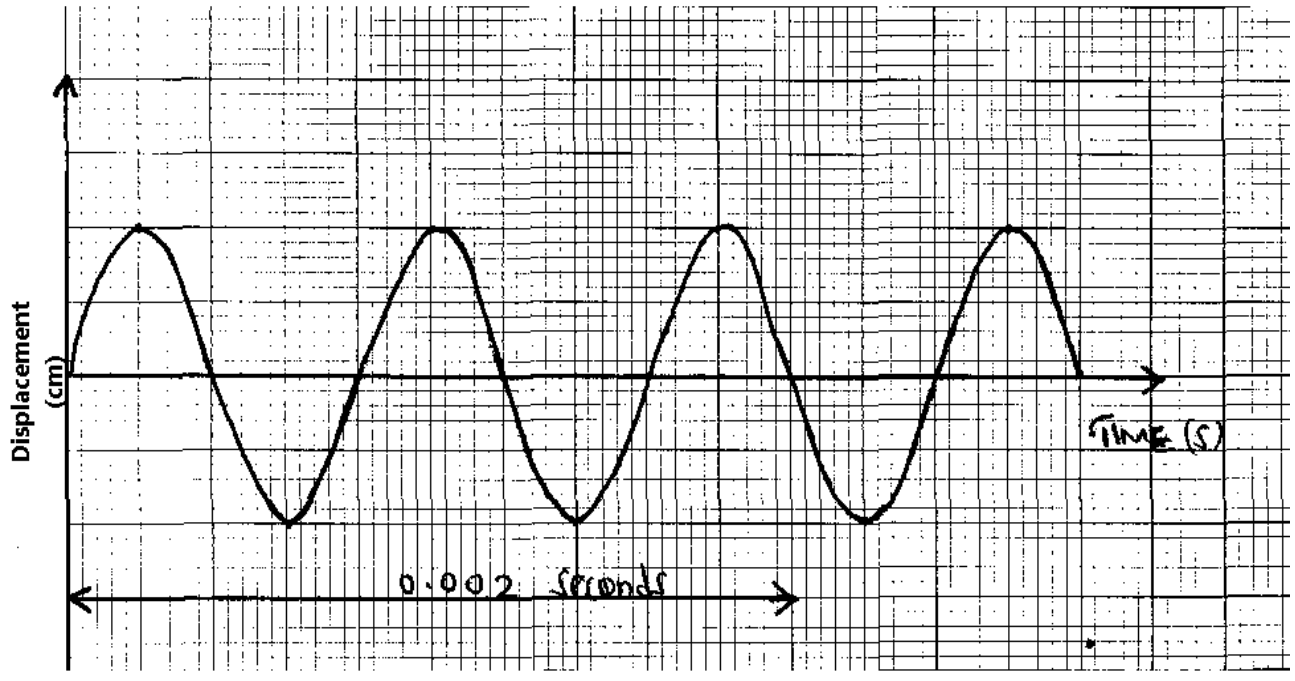

Fig.8

Determine:

(i) The periodic time (T) (2mks)

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(ii) The wavelength (λ) (3mks)

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(c) A fathometer produces sound in a ship and receives two echo's where there is a raised sea bed one after 2.5 seconds and the other after 3.0 seconds. Find the height of the raised sea bank if the velocity of sound in water is 1460m/s.(3mks)

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18. (a) What do you understand by the term photoelectric effect? (1mk)

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(b) Name one factor that determines the velocity of photoelectrons produced on a metal surface when light shine on it. (1mk)

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(c) In a photoelectric effect experiment, a certain surface was illuminated with radiations of different wavelengths and the stopping potential determined for each wavelength. The table in **figure 9** below shows the results obtained.

Stopping potential ,V_s (V)	1.35	1.15	0.93	0.62	0.36
Wave length ,$\lambda(x10^{-7}m)$	3.77	4.04	4.36	2.42	5.46

Fig.9

(I) On the grid provided plot a graph of stopping potential (Y-axis) against frequency. (7mks)

(II) From your graph **determine:**

(a) The threshold frequency (1mk)

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(b) The Plank's constant, h (3mks)

(e = 1.6 x 10^{-19} Coulomb, C = 3.0 x 10^{8} m/s)

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