Name ……..…… **Index No. ..……..…….…**

School ……... **Candidates Sign: ……...…..…**

Date: ……..

232/2
PHYSICS
Paper 2
July / August – 2008
Time: 2 Hours

NYANDO DISTRICT JOINT EVALUATION TEST - 2008

Kenya Certificate of Secondary Education (K.C.S.E)

232/2
PHYSICS
Paper 2
July / August – 2008
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- This paper consists of two sections: A and B.
- Answer all questions in section A and B in spaces provided.
- ALL working MUST be clearly shown.
- Mathematical tables and electronic calculators may be used.

FOR EXAMINERS USE ONLY

SECTION	QUESTION	MAX. SCORE	CANDIDATE'S SCORE
A	1 – 13	25	
B	14	10	
	15	09	
	16	09	
	17	14	
	18	13	
TOTAL SCORE		80	

This paper consists of 10 printed pages.
Candidates should check the question paper to ensure that all the
Pages are printed as indicated and no questions are missing.

SECTION A (25 Marks)

1. When the hole on a pinhole camera is made larger the image formed becomes larger. State one other change on the image formed. (1 mk)

2. Figure 1 represents a step in charging a material A by induction.

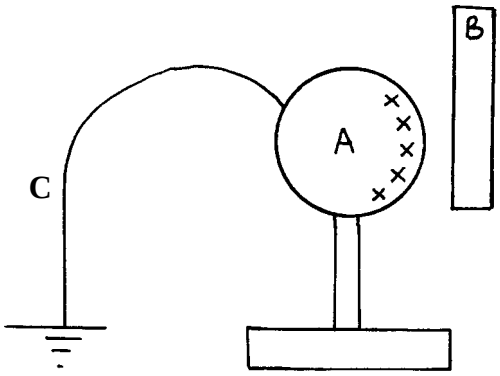


Fig. 1

(i) What is the charge on B? (1 mk)

(ii) Explain what happens at C. (2 mks)

3. Give the meaning of the term hard magnetic material. (1 mk)

4. Figure 2 represents a simple circuit diagram containing cells of e.m.f. 1.5V each.

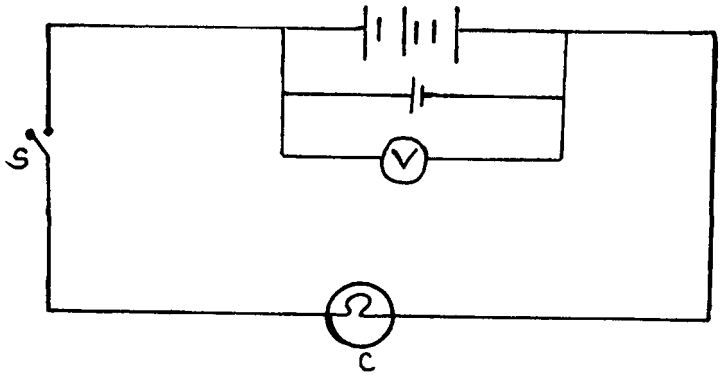


Fig. 2

(i) What does component C represent. (1 mk)

(ii) Determine the reading of V when the switch is open. (1 mk)

5. Fig 3 represents a set up used to study sound waves.

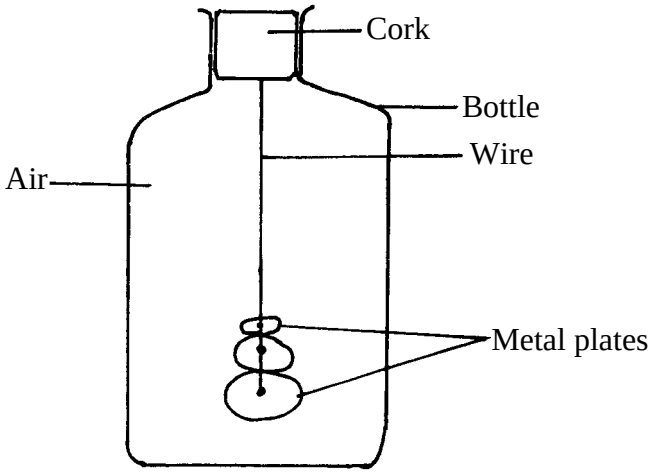


Fig 3

(i) What would be observed when the bottle is shaken? (1 mk)

(ii) Explain the observation that would be made if a little hot water is poured into the bottle then cork is replaced and the bottle is shaken? (2 mks)

(iii) What conclusion would you make from the above observations. (1 mk)

6. Criticle angle of a material is 42^0, determine the angle of retraction of light in the material if the incidence angle is 30^0. (2 mks)

7. Fig. 4 represents part of electric cooker coil.

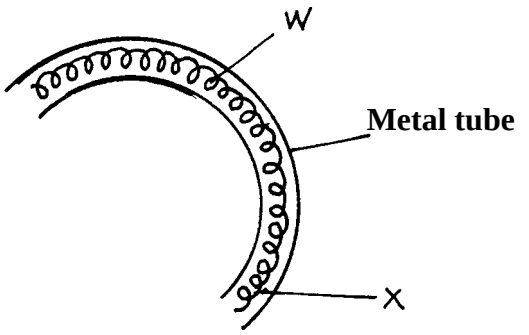


Fig. 4

(i) Why is the part labeled W coiled? (1 mk)

(ii) State the property of material X that makes it suitable for its use. (1 mk)

8. An electrical heater of power 2.5Kw is used everyday for 45mn. Calculate the electrical energy consumed in Kilowatt hours in a month of 30 days. (2 mks)

9. Distinguish between hard and soft X-rays. (2 mks)

10. What is work function as used in photoelectric effect. (1 mk)

11. State two properties which differentiate electromagnetic waves from each other. (2 mks)

12. A lens has focal length of 12.5cm. Determine its power. (2 mks)

13. What property of tungsten makes it suitable for use as a target in an x – ray tube? (1 mk)

SECTION B (55 Marks)

14. a) (i) What is the difference between stationary and progressive waves. (1 mk)

(ii) State two distinctions between the way sound waves and electromagnetic waves are transmitted. (2 mks)

b) A student stands between two halls and 400m from the nearest hall. The halls are X metres apart. Every time the student claps, two echoes are heard by the student such that the first echo comes after 2.5 seconds while the second follows 2 seconds later. From this information calculate;

(i) The speed of sound in air. (2 mks)

(ii) The value of X. (3 mks)

c) Explain the effect of pressure on the speed of sound in gases at a constant temperature. (2 mks)

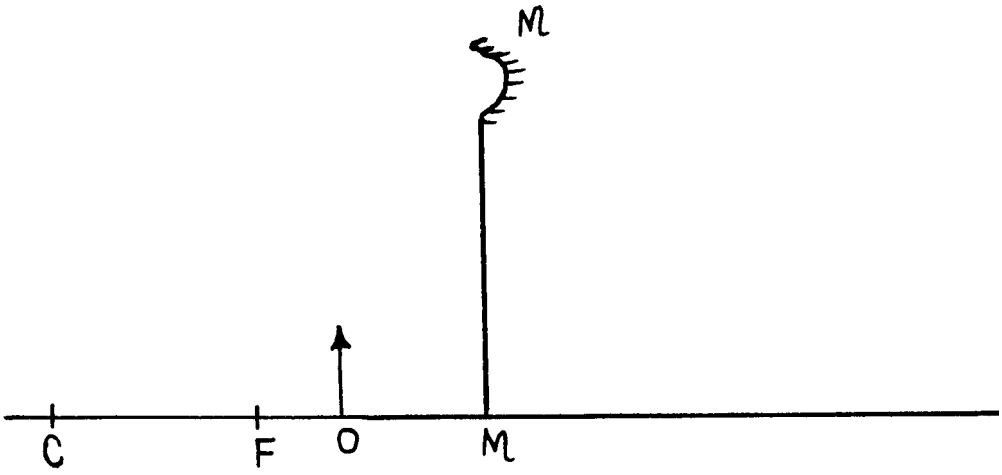
15. a) Define the following terms as related to curved mirrors

(i) Focal point (1 mk)

ii) Aperture (1 mk)

b) You are provided with the following apparatus; A white screen, a metre rule and a concave mirror. Using the apparatus, describe an appropriate method of determining the focal length of the mirror. (4 mks)

c) Fig. shows an object O in front of a curved mirror M, on the same figure, locate the image. (3 mks)



16. a) Define the term radioactive decay. (1 mk)

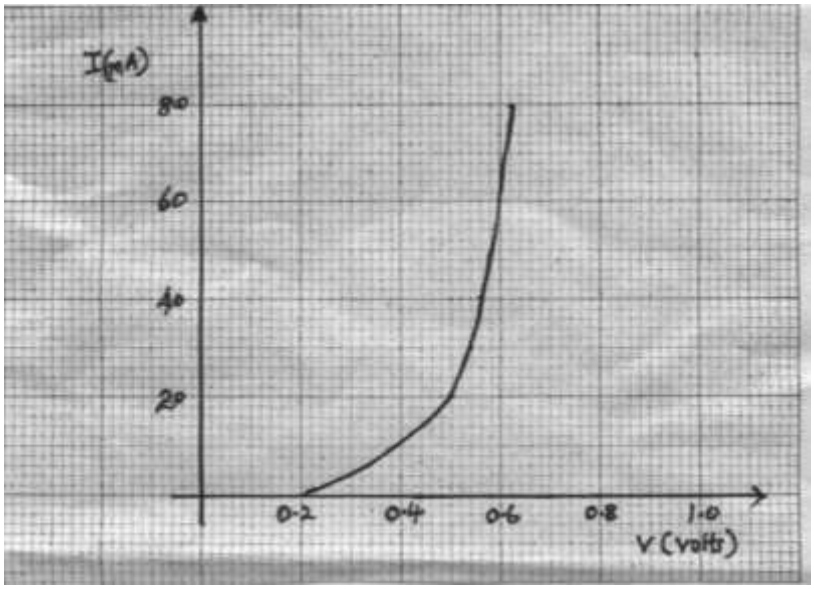
b) A radioactive element A of half life 31 days decays to element B. A sample of A of mass 32g is kept in a container. Assuming B is stable; calculate the mass of B that will be in the container after 124 days. (3 mks)

c) Radium $^{226}_{88}Ra$ disintegrates into a new stable element lead, $^{206}_{82}Pb$. How many alpha and beta particles are emitted. (3 mks)

d) A Geiger – miller tube registers some effects even in the absence of a radioactive source. Explain this observation and state one cause. (2 mks)

17. a) State ohm's law. (1 mk)

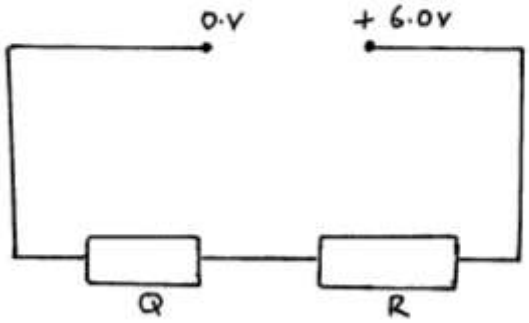
b) The graph in fig. shows the current – voltage characteristics of a certain device Q.



(i) State with a reason whether the device obeys ohm's law. (2 mks)

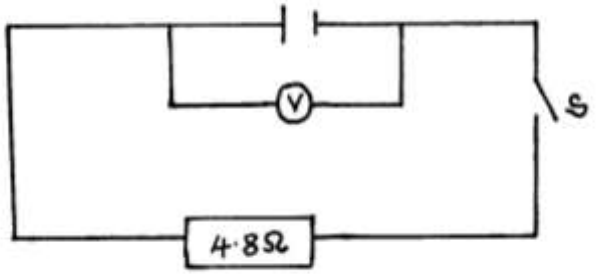
(ii) Determine the resistance of the device, Q when current through it is 30mA. (3 mks)

(iii) When the device Q is connected in the circuit in fig. below the voltage across it is 0.5V



Calculate the value of the resistance R. (3 mks)

c) Figure shows a voltmeter connected across the cell. The voltmeter reads 1.5V when the switch S, is open and 1.2V when the switch is closed.

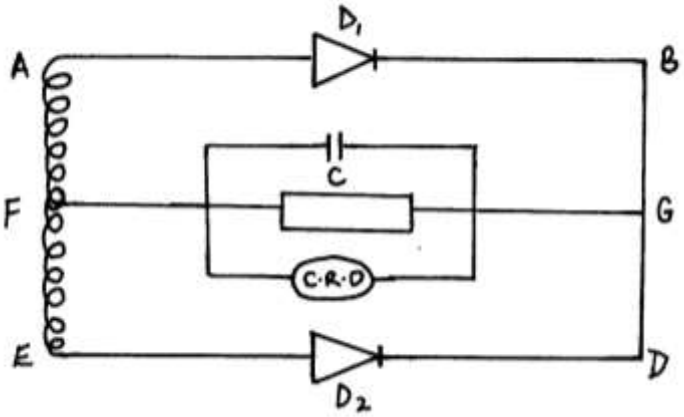


(i) What is the e.m.f. of the cell. (1 mk)

(ii) What is the terminal voltage of the cell. (1 mk)

(iii) Calculate the internal resistance of the cell. (3 mks)

18. a) Figure below shows a full wave rectification circuit.



(i) What do you understand by full wave rectification of a.c (1 mk)

(ii) Identify the diode that is reverse biased when point E is positive with respect to point A. (1 mk)

(iii) State the direction of electric current when part A is positive with respect to point E. (1 mk)

(iv) What is the purpose of the capacitor C? (1 mk)

(v) Sketch the waveform of the output current as seen in the C.R.O. (2 mks)

(vi) Explain how you can obtain an N-type extrinsic semi – conductor. (1 mk)

b) A transformer with primary coil of 400 turns and secondary coil 200 turns is connected to 240ac mains.

(i) Calculate the secondary voltage. (2 mks)

(ii) If the primary current is 3.0A and secondary is 5.0A. What is its efficiency? (2 mks)

(iii) How is energy loss in transformer due to hysteresis minimized. (1 mk)

(iv) Explain why electrical power is transmitted at very high voltages. (1 mk)

END