Name:	Index No
School:	Candidate's Sign
Deter	

Date:

232/2 PHYSICS PAPER 2 JULY /AUGUST 2011 TIME: 2 HOURS

BUSIA DISTRICT JOINT EVALUATION TEST *Kenya Certificate of Secondary Education (K.C.S.E.)*

Physics Paper 2

INSTRUCTIONS TO THE 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 the spaces provided.
- All working *must* be clearly shown in the spaces provided.
- Mathematical tables and electronic calculators may be used.

For Examiners' Use Only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
А	1-11	25	
В	12	14	
	13	12	
	14	11	
	15	8	
	16	10	
	TOTAL	80	

This paper consists of 8 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing

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Physics 232/2

SECTION A (25 MARKS) Answer <u>all</u> questions in the spaces provided on the question paper.

1. Photo electrons emitted by a certain metal surface constitute a "photo current". What is the effect of increasing the intensity of illumination on the magnitude of the "photo current"? (1 mk)

.....

2. The figure below shows a displacement - time graph for a wave. Determine its frequency. (3mks)



3. Name **two** types of electromagnetic radiations whose frequencies are greater than that of visible light. (2mks)

4.	State two defects of a simple cell and how each can be corrected.	(2mks)

5. The graph in the figure below shows the relationship between the attractive forces of an electromagnet and the magnetizing current. Give reasons for the shape of the domain theory. (2mks)



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6.	Briefly explain how a junction diode works.	(2mks)

The figure below shows an arrangement of three components. If the total capacitance of the capacitors is 5μ F. Calculate the value of x. (3mks)



8. The figure below shows a wire in a magnetic field. A current is switched on to flow through the wire in the direction shown. State the direction of motion of the wire. (1mk)



An accelerating potential of 25KV is applied to an X-ray tube. Calculate

 The kinetic energy of the electrons emitted.

(3mks)

(ii)The velocity of these electrons (take the charge on an electron to be 1.6 x 10⁻¹⁹C and the mass of an electron to be 9.0 x 10⁻³¹kg)
 (2mks)

10.	The human ear can distinguish two sounds as separate only if they reach it at least 0.1 second	ds apart.
	How far from a wall must an observer be in order to hear an echo when he shouts?	
	(speed of sound in air 330m/s)	(3mks)

11. What is the effect of moving a pinhole camera closer to the object?	(1mk)

SECTION B (55 MARKS)

12. The table below shows the object and the corresponding image distances in an experiment with a convex lens.

Object distance U cm	80	33	26.5	22.5	20.0
Image distance V,cm	20.0	33	40.0	56.0	72.0
Magnification M					
Complete the table giving y	our answers t	o 3 d.p.	I		(3mks)

(4mks)

(i) Complete the table giving your answers to 3 d.p.

(ii) Plot a graph of linear magnification M against image distance V.

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(iii) Given that the linear magnification is related to the image distance by the formula:

$$If = \underbrace{V}_{M+I}$$

Determine the focal length f of the lens.

(4mks)

iv) Determine the image distance when the magnification is 1.

(2mks)

- 13. a) A coin is placed beneath a transparent block of thickness 10cm and refractive index 1.50. Calculate the vertical displacement of the coin. (3mks)
 - b) In an experiment to observe interference patterns of light waves, a double slit is placed close to the source as shown below.



iii) State and explain what is observed on the screen when the slit separation S_1 - S_2 is reduced.	(2mks)
iv.) State and explain what is observed on the screen when white light is used in place of the monochromatic light.	(3mks)

14. a) The graph below was obtained from experiment to determine the effective resistance of two resistors connected in parallel. If the value of one resistor is 50 ohms. determine the value of the other resistor. (5mks)





b) (i) State Ohm's Law.

(1 mk)

14. (ii) The figure below shows a circuit that can be used to verify Ohm's law



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Explain briefly how the setup can be used to verify ohm's law		
••		
15.	a) What is meant by background radiation?.	(1mk)
	b) A 32 g sample of a radioactive substance was reduced to 2 g in 96 day	vs. How much would
	remain after another 96 days?.	(3mks)

c) i) Define the term doping	(1 mk)
ii Explain how doping produces a p-type semiconductor.	(3mks)

- 16. a) Sate Lenz's law of electromagnetic induction
 (1mk)
 - b) The figure below shows two circuits close to each other.



When the switch is closed, the galvometer shows a reading then returns to zero. When the switch is open, the galvometer shows a reading in the opposite the direction and then returns to zero. Explain theses observations. (3mks)

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c) A transform 75% efficies	er is connected to a 12.0V, 3 nt, determine the mains curr	30.0W lamp from the 24 ent.	OV main. If the transf	former is (3mks)

d) The figure below an a.c generator



i) Label the parts A and B	(2mks)
ii) Explain how this type of generator works.	(3mks)