Name: …… **Index No.** ……

School: …… **Candidate's Sign.** ……

Date: ……

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

NYAMIRA 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.
- Take gravitational field strength, g = 10N/Kg

For Examiners' Use Only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1-12	25	
B	13	08	
	14	11	
	15	10	
	16	14	
	17	12	
	TOTAL	**80**	

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

SECTION A (25 MARKS)

1. Figure 1 below shows a pin-hole camera and the image at an object formed in it

Fig 1

a) Complete the diagram to show the object and the rays forming the image. (2mks)

b) The image is 1.8cm high while the object is 3.0m in front of the camera . Calculate

(i) The height of the object (2mks)

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(ii) Magnification (2mks)

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2 Give a reason why sharp projections are provided on the wing and tail at an aeroplane. (1mk)

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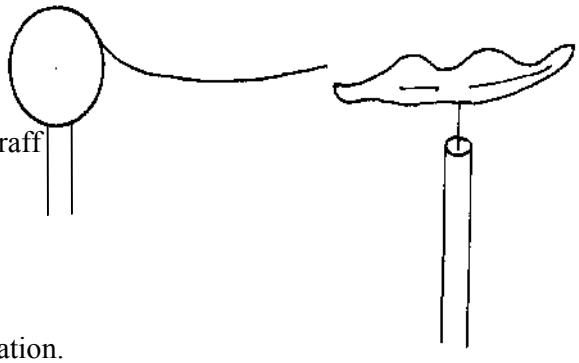
3. A lit candle is placed near the sharp point of a pin which is connected to positively charged atoms of a van de Graff generator is split into two directions when the generator is working as shown in the figure 2 below.

Fig 2



Explain the observation. (2mks)

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4. State **one** advantage of a circuit breaker over a fuse in a circuit. (1mk)

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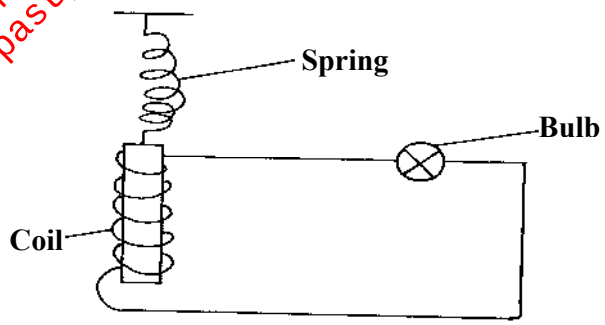
5. Figure 3 below shows a magnet made to oscillate inside a coil connected to a bulb.

Fig 3



(i) Explain what's observed. (2mks)

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(ii) How can the arrangement be designed to make the bulb light longer? (1mk)

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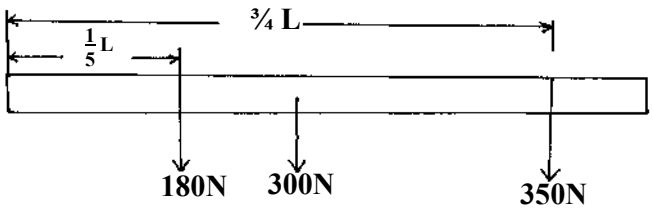
6. Figure 4 shows a uniform plank of length L weighing 300N carrying weight of 180N at $^{1}/_{5}$L and 350N at ¾L from one end.

Fig 4

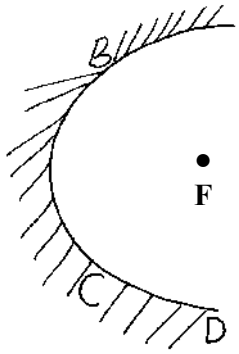


(i) Find the single force required to produce equilibrium. (1mk)

(ii) Through which point does the force act. (2mks)

7. Figure 5 is a parabolic surface with a source of light placed at its focal point F. Draw rays to show reflection from the surface when rays from the source strike the surface at point **P Q R** and **D** (2mks)

Fig 5



8 State **two** factors that cause light to bend as it travels from on medium to another. (2mks)

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9. State **two** factors that affect resistance of a metallic conductor . (2mks)

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10. Below is part of the electromagnetic spectrum in order of decreasing wavelength.

A	B	C	Infrared radiation	Visible light	D	E

(a) How are waves D produced? (1mk)

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(b) State **one** use of the wave E. (1mk)

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11. Explain why its wrong to connect a transformer to as d.c source. (2mks)

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12. Differentiate between a semi-conductor and a good conductor. (1mk)

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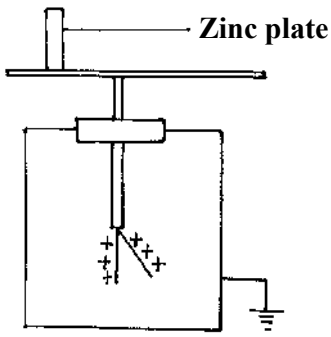
SECTION B (55 MARKS)

Answer all questions in the spaces provided

13 A clean Zinc plate was charged and then placed on the cap of a positively charged electroscope as shown in Figure 6

Fig 6



(a) State the charge on the plate before it was placed on the cap of the electroscope. (1mk)

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(b) What would happen to the leaf of the electroscope if ultraviolet light was made to fall on the Zinc plate? Explain (2mks)

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(c) Why is Zinc plate cleaned. (1mk)

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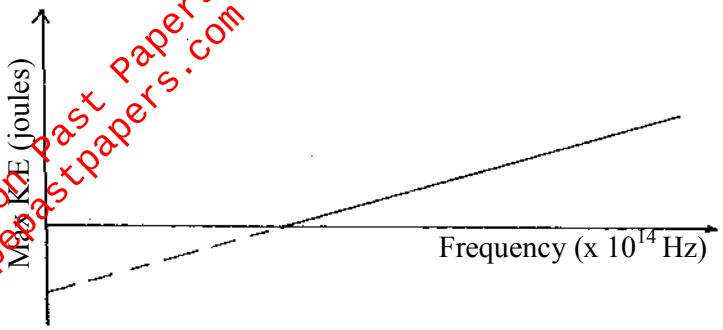
(d) A graph of Kinetic energy of photoelectrons emitted by metal surface against the frequency of radiation used is shown in the graph below



The graph is extrapolated to intersect the K.E axis

(i) From the graph, state the relationship between K.E and Frequency. (1mk)

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(ii) What's the significance of the gradient of the graph? (1mk)

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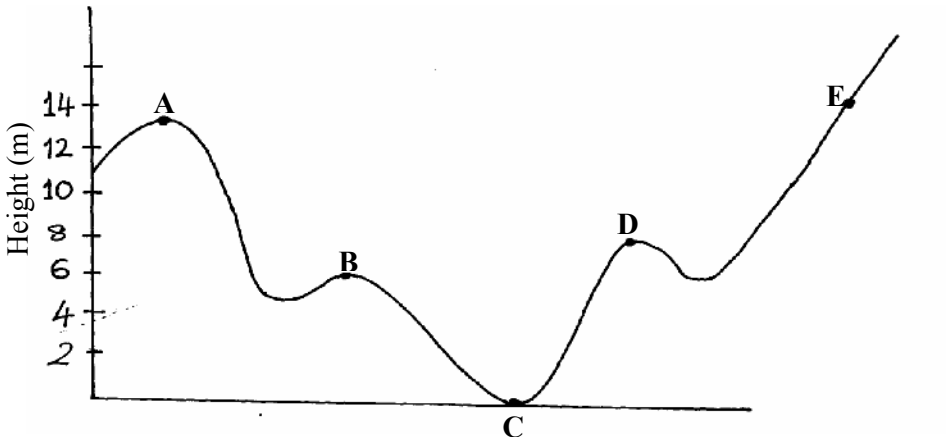
(iii) Show on the graph the threshold frequency of the metal (1mk)

13. A load of 60kg moves from rest position to a point E along a frictionless path ABCDE



(a) Calculate the

(i) Maximum Kinetic energy of the load. (3mks)

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(ii) Maximum velocity (3mks)

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(iii) Velocity at B (3mks)

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(b) State what happened when the load is at E. (1mk)

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(c) Sometimes work is not done even if there's an applied force. Describe some situation when this can happen. (1mk)

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15. (a) What causes electrical resistance in conductors. (1mk)

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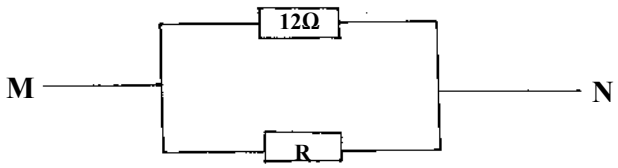
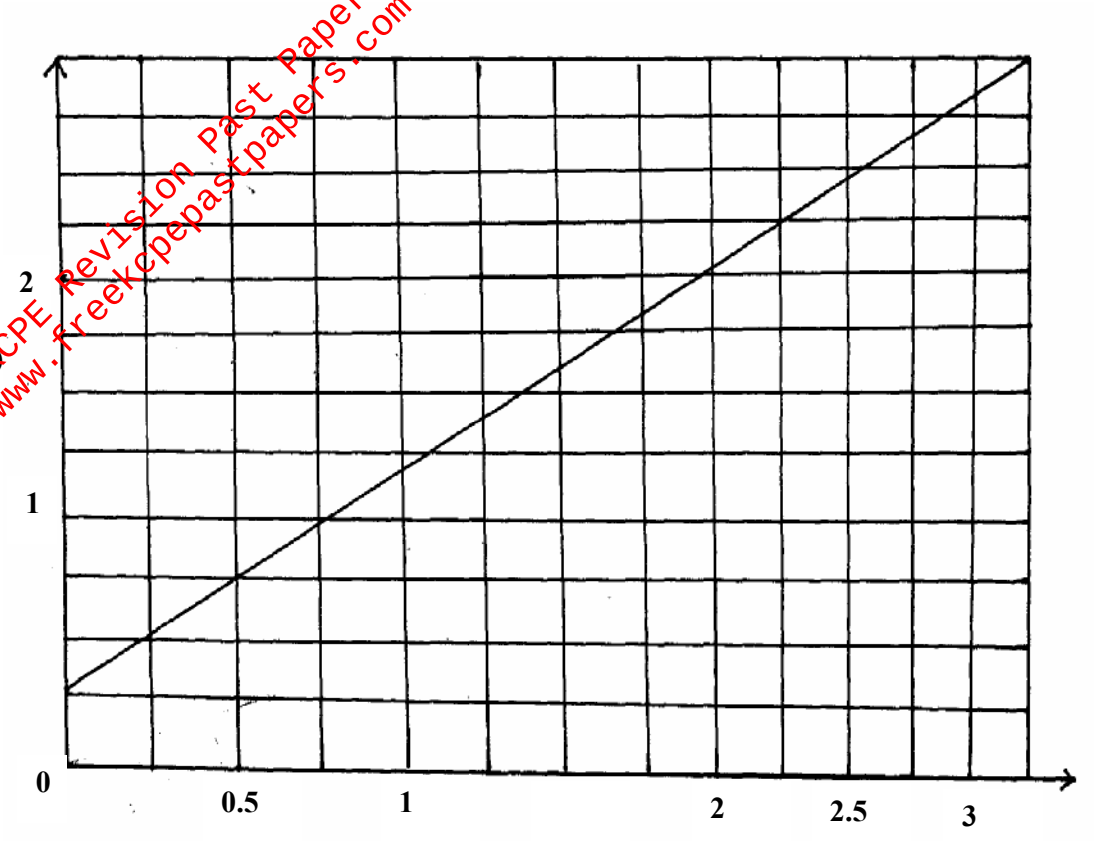
(b) The combined resistance of the resistors in the circuit is 80hms (1mk)



Find the value of R (3mks)

(c) In an experiment to determine e.m.f, E and the internal resistance, r of an accumulator, a student obtained the value of external resistance, R and the current. He then plotted a graph of I against R and obtained the graph below.



(i) Draw a suitable circuit to get the above results. (2mks)

(ii) Use the graph to determine the values of E and r (4mks)

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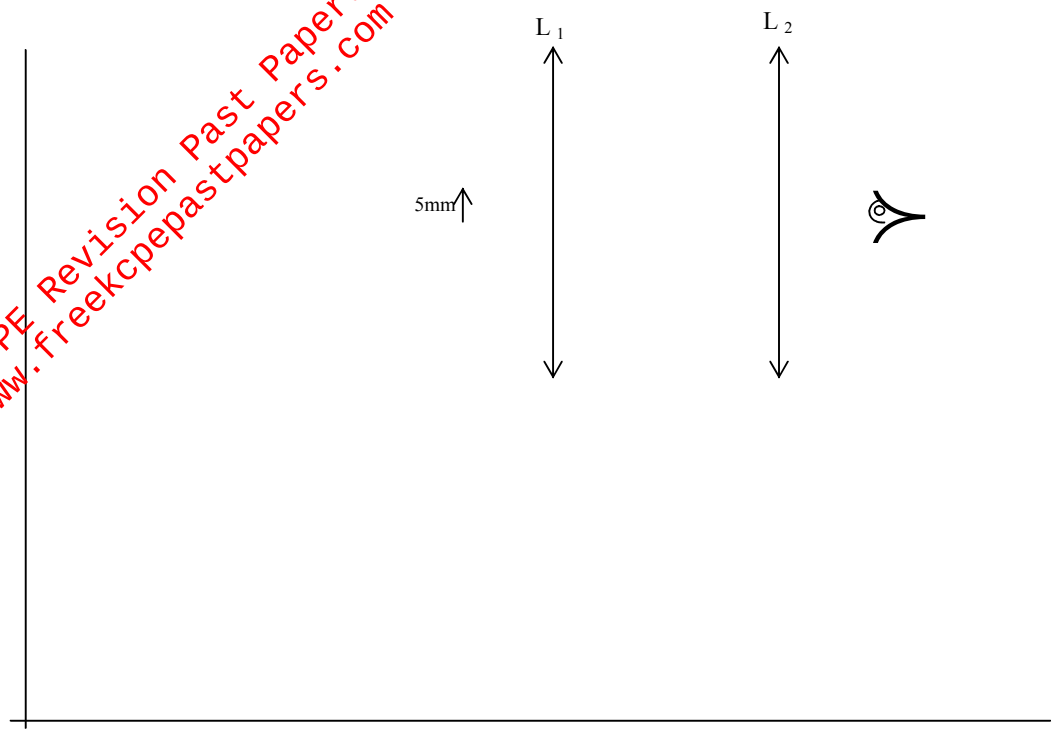
16. The figure below shows two converging lenses L_1 and L_2 placed 7 cm apart. The focal length of L_1 is 1.2 cm and that of L_2 is 2.4 cm. An object 5mm is placed 1.5cm from the lens L_1. An observer positions his eye as shown.



(a)Construct an accurate ray diagram on the figure to show the positions of the final image as seen by the observer. (4mks)

(b) Determine the magnification . (2mks)

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(c) State the application for the above arrangement. (1mk)

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(d) What name is given for lens L_2 in the arrangement shown. (1mk)

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(e) Determine the power of lens L_1 (2mks)

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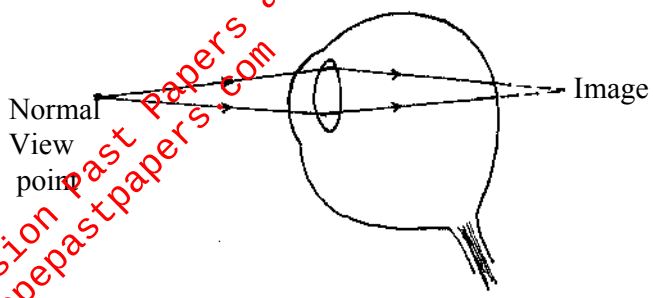
(f) The figure below is a human eye with a certain defect



(i) Name the defect (1mk)

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(ii) On the same diagram, sketch the appropriate lens to correct the defect and sketch rays to show the effect of the lens. (2mks)

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(iii) State the possible cause of the defect . (1mk)

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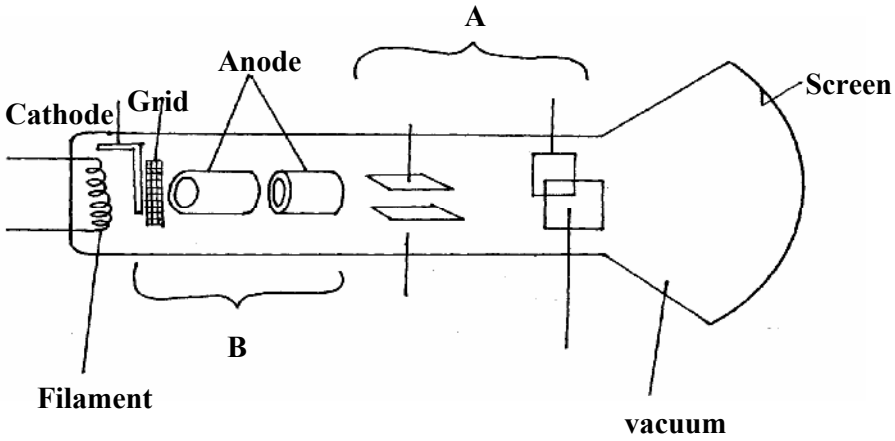
17. The figure below shows the features of a cathode ray oscilloscope



(a) Name the parts A and B and state the role played by each of the parts A and B (4mks)

A ……

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B ……

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(b) Explain how electrons are produced (1mk)

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(c) Explain why the cathode of a C.R.O is coated with oxides of Barium and strontium (1mk)

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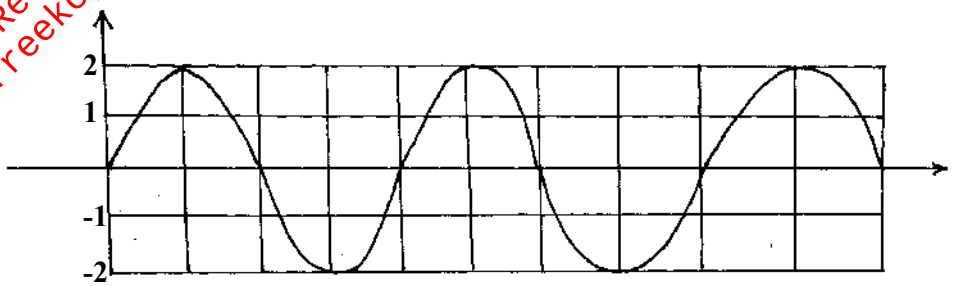
(d) The figure below shows an A.C voltage on a C.R.O screen



(e) Determine the peak voltage of the input signal given that the sensitivity of the vertical axis is 12V/cm. (2mks)

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(f) Give a reason why it's possible to have a wider screen on the T.V set than on the C.R.O (1mk)

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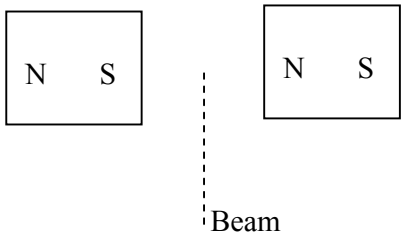
(g) The figure below represents a cathode ray beam passing between pole pieces of a permanent magnet



(i)Describe the path followed by the beam and give reason for your answer. (2mks)

(ii) Show the direction of current on the figure (1mk)