Name ..... Index No. .....

School .....Candidate's signature .....

Date .....

232/2

PHYSICS
Paper 2

July/August 2016
Time 2 hours

KERICHO WEST FORM FOUR JOINT EVALUATION

Kenya Certificate of Secondary Education

PHYSICS

Paper - 232/2

July/August 2016

Time: 2 hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Sign and write the date of the examination in the spaces provided above.
- This paper consist of two section 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 in this booklet.
- Non-programmable, silent electronic calculators and **KNEC** mathematical tables may be used.

for more free past papers visit www.freekcsepastpapers.com or Call: 0720502479

FOR EXAMINER'S USE ONLY

SECTION	Questions	Maximum score	Candidate score
A	1 to 14	25	
B	15	11	
	16	8	
	17	6	
	18	13	
	19	10	
	20	7	
TOTAL SCORE		80	

This paper consists of 10 printed pages

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

SECTION A (25 marks)
Answer ALL questions in this paper

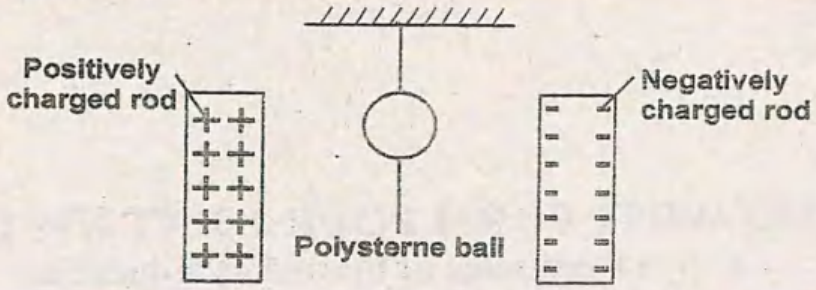
1. A plastic sheet of paper and a plane mirror both reflect light yet only the plane mirror forms images. Explain why the paper cannot form images. (1 mark)

.....

.....

2. A polystyrene ball coated with aluminium is freely suspended between two highly charged rods as shown in the Fig 1 below.

Fig 1



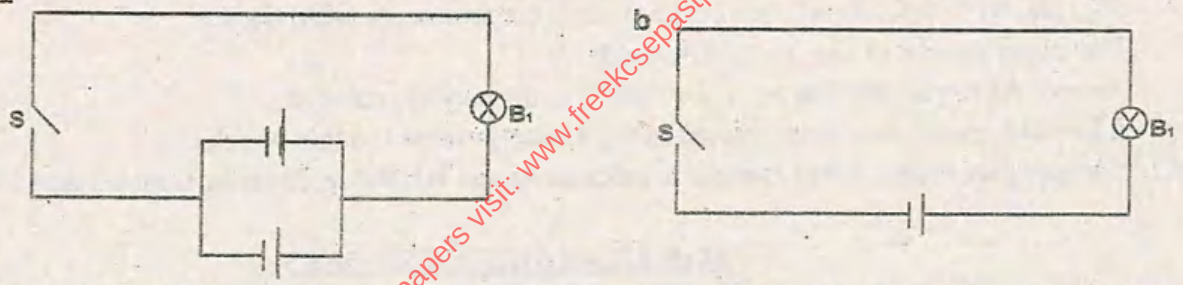
The ball is found to swing between the two rods as it touches one of them at a time. Explain the cause of this behaviour of the ball. (1 mark)

.....

.....

3. The Fig 2 (a) and (b) shows two simple electric circuits. The bulb are identical.

Fig 2. a



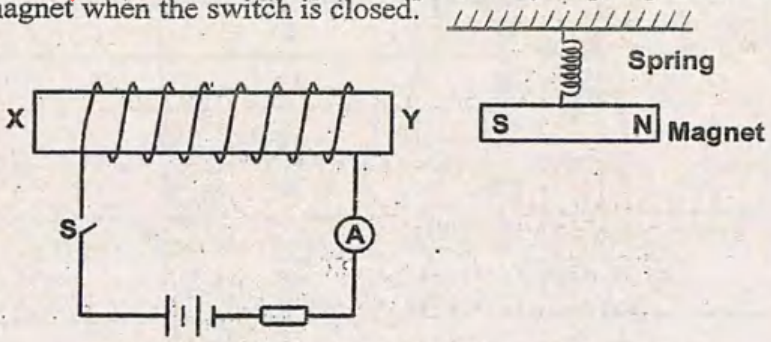
When the switches 'S' are closed, which bulb will light more brightly? Give a reason for your answer. (2 marks)

.....

.....

4. The diagram below shows a permanent magnet suspended by a spring. State with a reason the behaviour of the magnet when the switch is closed. (2 marks)

Fig 3



.....

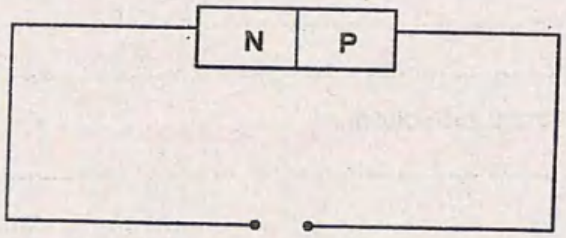
.....

.....

For more free pastpapers visit: www.freekcsepastpapers.com or Call: 0720502479

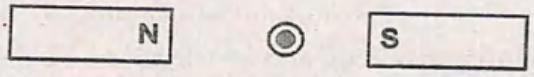
5. The fig 4 below show a P-N junction diode. Complete the diagram to forward bias the diode. (1 mark)

Fig 4



6. The fig 5 below represents a current-carrying conductor in a magnetic field.

Fig 5



Indicate the direction of motion of the conductor when a current passes through it. (1 mark)

7. The table 1 below shows the arrangement of electro magnetic waves arranged in order of decreasing wavelength.

Table 1

A	B	C	D	E	F	G

If F represents the wave having the shortest wavelength among the e.m.f radiations, identify the wave represented by letter 'C' and state one use of the wave. (2 marks)

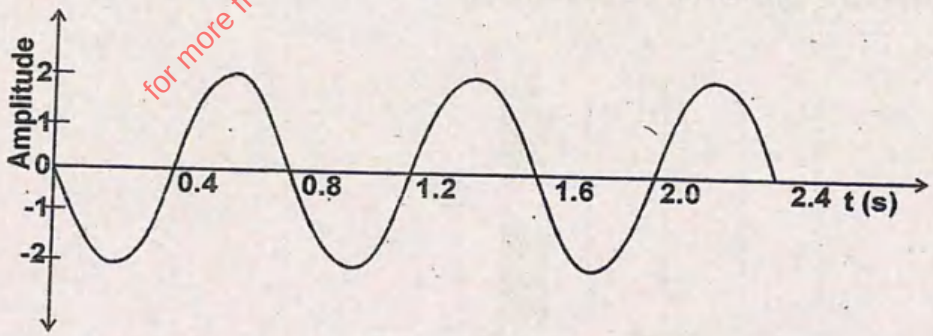
.....

.....

.....

8. The fig 6 below shows a wave. Use it to answer the questions that follow.

Fig 6



i) Determine the speed of the wave. (2 marks)

.....

.....

ii) On the same axes sketch a wave with half the amplitude and double the period. (1 mark)

for more free past papers visit: www.freekcsepastpapers.com or Call: 0720502479

9. A girl standing 600m away from a cliff bangs two pieces of wood together and hears an echo 3.5 second later. Determine the speed of sound in air at that place. (3 marks)

.....

.....

.....

.....

10. State any one application of total internal reflection. (1 mark)

.....

.....

11. State any property of cathode rays. (1 mark)

.....

.....

.....

12. A transformer with 2000 turns in the primary circuit and 150 turns in a secondary circuit has its primary circuit connected to an 800V a.c. source. It is found that when a heater is connected to the secondary circuit it produces heat at the rate of 1000W. Assuming that the efficiency is 100%, determine the current in the secondary circuit. (3 marks)

.....

.....

.....

.....

13. a) State the difference between stationary and progressive waves. (1 mark)

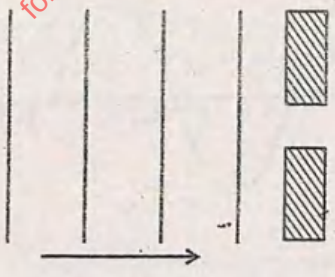
.....

.....

.....

b) The fig 7 below shows water waves incident on a barrier with a gap. Complete the diagram to show the waves after passing through the barrier. (1 mark)

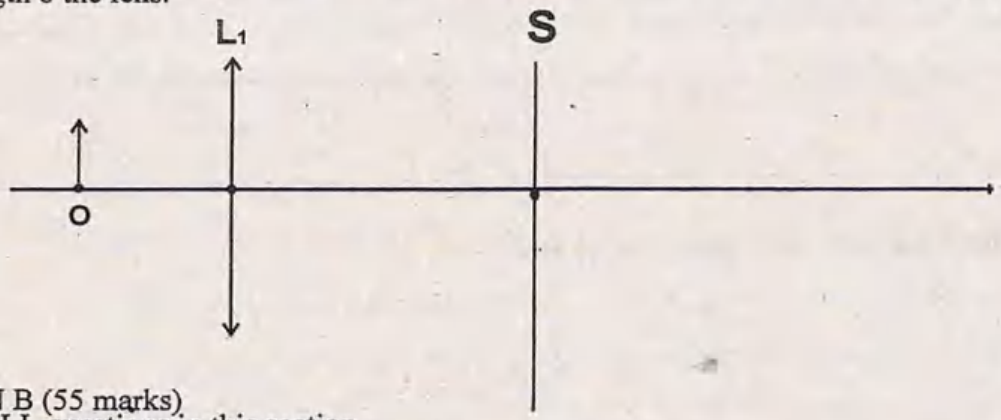
Fig 7



for more free past papers visit: www.freekcsepastpapers.com or Call 0720502479

14. The fig 8 below (drawn to scale) shows a lens L_1 placed 30cm from an object O. The image is formed on the screen 's' 50cm from the lens. On the same figure, draw the appropriate rays to determine the focal length o the lens. (3 marks)

Fig 8



SECTION B (55 marks)
Answer ALL questions in this section

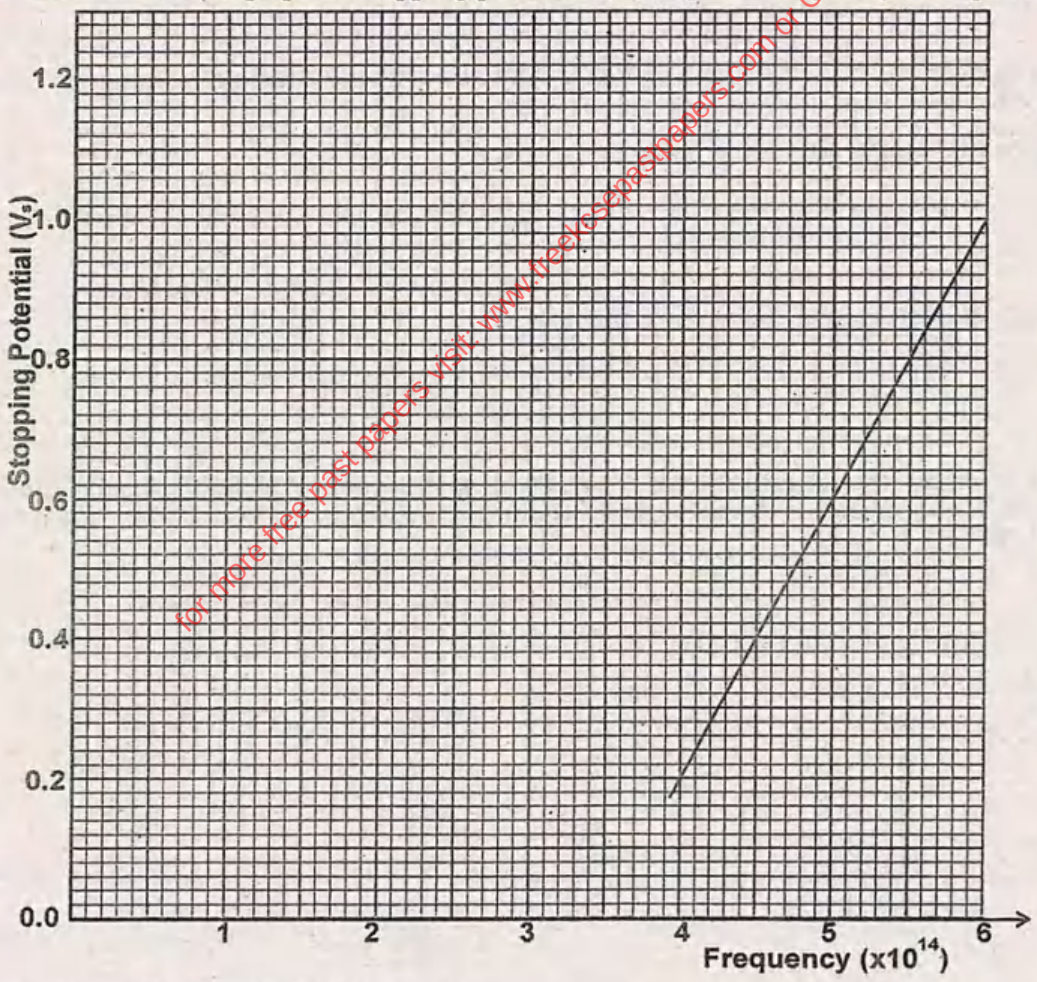
15.a) Define the term work function in photoelectric effect. (1 mark)

.....

.....

b) The fig 9 below shows the graph of stopping potential (V_S) against frequency for a photocell.

Fig 9



for more free past papers visit www.freekcsepastpapers.com or Call: 0720502479

i) State the value of the threshold frequency. (1 mark)

.....

.....

ii) Using the graph, determine the plank's constants (Charge of an electron = 1.6×10^{-19}C) (3 marks)

.....

.....

.....

.....

iii) Calculate the work function of the photocell. (2 marks)

.....

.....

.....

.....

c) If the speed of emitted electrons in the photocell is $8 \times 10^{5}ms^{-1}$, calculate the maximum kinetic energy of an electron. (Mass of electron = 9.11×10^{-31}kg). (2 marks)

.....

.....

.....

d) A radiation falls on a photosensitive material. State how the following changes affect the emitted photoelectrons.

i) Increase in the intensity of the radiation. (1 mark)

.....

.....

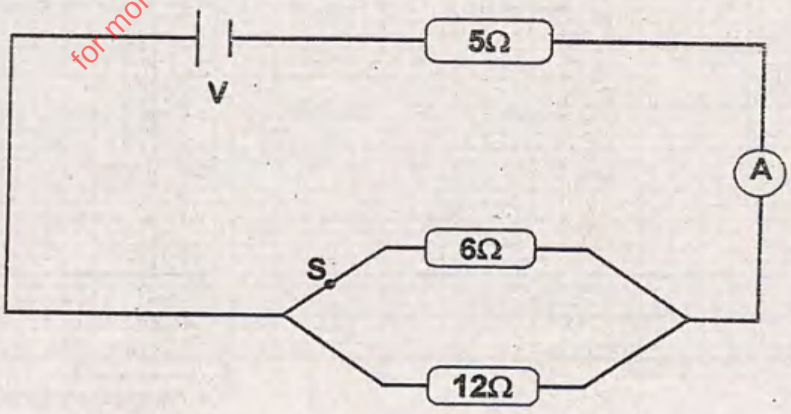
ii) Increase in the frequency of incident radiation. (1 mark)

.....

.....

16. A battery of emf V is connected in series with an ammeter of negligible internal resistance, a 5Ω resistors and a combination of resistors of 6Ω and 12.0Ω in parallel as shown in fig 10 below. The ammeter reading is 0.5A

Fig 10



for more free past papers visit www.freekcsepastpapers.com or Call: 0720502419

Determine

i) P.d across the 12. Ω resistors. (2marks)

.....

.....

ii) P.d across the battery. (1mark)

.....

.....

iii) The internal resistance of the battery. (2marks)

.....

.....

b) if the switch 'S' is now opened , what will be the p.d across the battery? (3marks)

.....

.....

17.a) define radioactively. (1marks)

.....

b) What do you understand by the term background radiation. (1mark)

.....

c) Explain why bromine gas is added to Geiger Muller tube. (1mark)

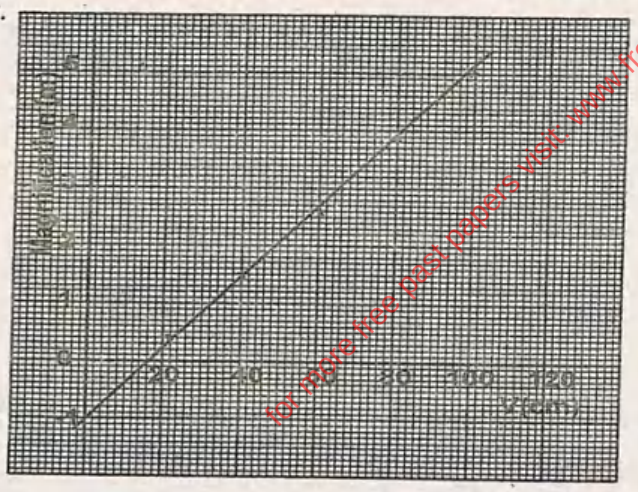
.....

Determine the half life of a radioactive materials if it's activity falls to 1/8 of its initial value in 3060 seconds. (3marks)

.....

.....

18. The graph in fig 10 below shows the relationship between magnifications of the image against image distance of a concave mirror . Use the information of the graph to answer the questions that follow.



for more free past papers visit: www.freekcsepastpapers.com or Call: 0720502479

a) Given that the mirror formula is $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ write down the equation of the graph. (3marks)

.....

.....

b) Determine the object distance when m = 1.0m. (1mark)

.....

.....

c) Determine the focal length of the mirror. (3marks)

.....

.....

The distance between an object and its magnified real image produced by a concave mirror is 20cm. when the object is placed 10cm from the pole of the mirror. Determine.

i) linear magnification of the image. (3marks)

.....

.....

ii) the focal length of the mirror. (3marks)

.....

.....

19 a) State the factors which affect the capacitance of a capacitor. (2marks)

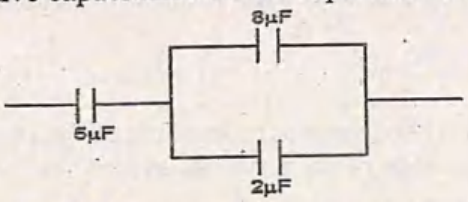
.....

.....

b) Draw the electric field pattern around a positive charge in fig 12 below. (2marks)

fig12

c) Find the effective capacitance of the capacitors as shown in fig 13 below. (3marks)

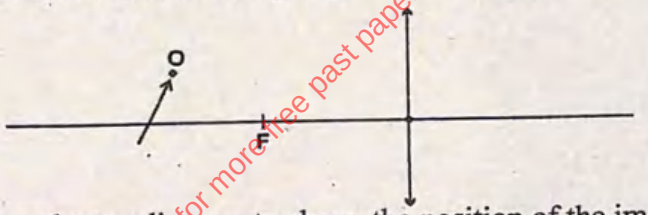


d) Calculate amount of charge stored in a 20uf capacitor if it is charged from a 100V electricity supply. (3marks)

.....

.....

20 The fig 14 below shows on object placed in front of a convex lens.



a) i) Complete the ray diagram to show the position of the image. (3marks)

.....

.....

ii) Calculate the magnification of the image. (2marks)

.....

.....

b) An object of height 10cm stand before a diverging lens of focal length 30 cm and at a distance of 20cm from the lens. Determine: The image distance. (2marks)

for more free past papers visit: www.freekcsepastpapers.com or Call: 0720502479