

NAME:ADM NO:CLASS:

CANDIDATE SIGNATURE:DATE:

232

PHYSICS (THEORY)

MARCH 2019

TIME: 2 ½ HOURS

FORM 2 JOINT EVALUATION

END TERM 1 2019

KENYA CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

INSTRUCTIONS TO CANDIDATES

- a) Write your name, admission number and class in the spaces provided above.
- b) Sign and write the date of examination in the spaces provided above.
- c) Answer all questions in section A and B in the spaces provided.
- d) All working must be clearly shown in the spaces provided.

FOR EXAMINERS USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE SCORE
1-12	35 marks	
11-16	65 marks	
Total	100 mrks	

Answer all the questions in the spaces provided.

1(a) Briefly explain the steps involved in a scientific approach to the study of physics. (2mks)

.....

.....

.....

.....

(b) Give an instance where physics interdepend with:-

(i) Home science (1mk)

.....

.....

.....

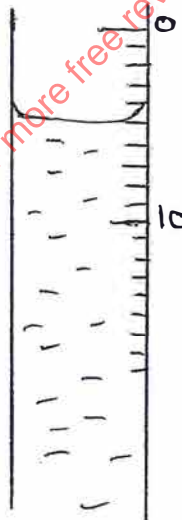
(i) Technology (1mk)

.....

.....

.....

2. The figure below shows a burette partly filled with a liquid. The burette was initially full to the zero mark.

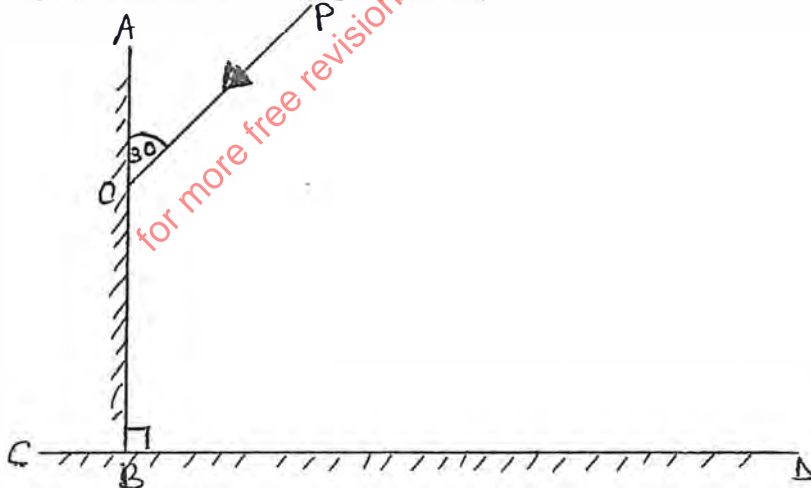


If the quantity of the liquid removed has a mass of 20g, determine the density of the liquid(2mks)

3. State any **two** forces that act without contact. (2mks)

4. A block measuring 15cm by 10cm by 20cm rest on a flat surface. The block has a weight of 6N. Determine the minimum pressure it exerts on the surface (3mks)

5. The **figure 2** below shows mirrors AB and CD inclined at right angles. A ray PO makes an angle of 30° with the mirror AB as shown.

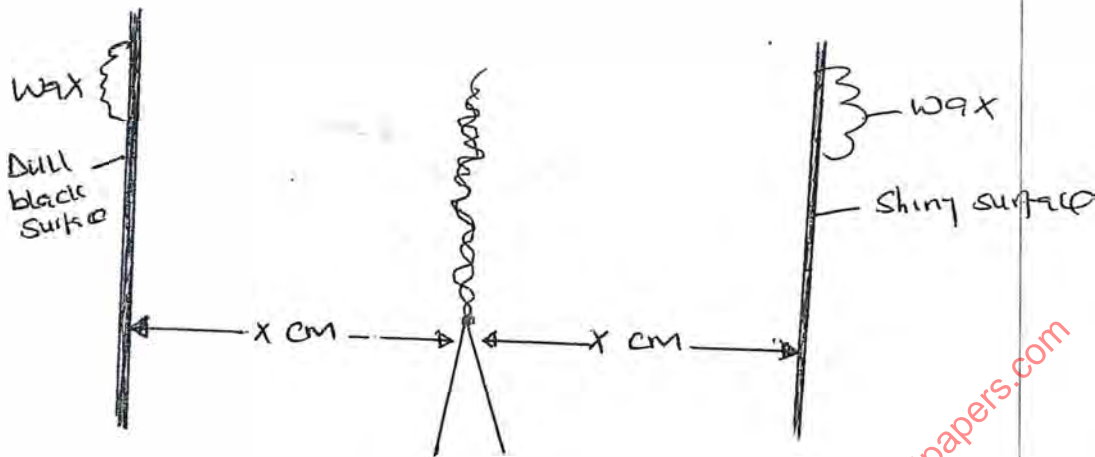


(a) Show the path of the ray after reflection after both mirrors. (1mk)

(b) What is the angle of incidence in mirror CD

(1mk)

6. The figure 3 below shows the effect of heat from the heater on the two surfaces.



(i) How does the heat from the heater reach the surfaces

(1mk)

(ii) State what is observed from the set-up after the heater is switched on for a few minutes.

(2mks)

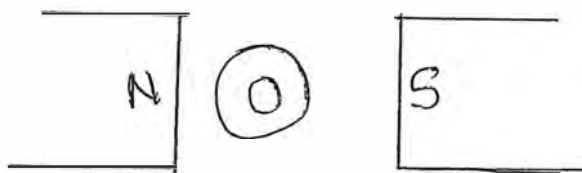
7. Sketch the magnetic field patterns for each of the arrangement below.

(2mks)

(i)



(ii)



8(a) A glass is completely filled with water. A spoonful of common salt is added slowly to the water. The salt dissolved and the water does not overflow.

(i) Why is salt added slowly (1mk)

.....

(ii) Why doesn't the water overflow? (1mk)

.....

.....

(b) In the figure 4 below ammonia gas and hydrochloric acid diffuse and react to form a white deposit on the walls of a long glass tube as shown.

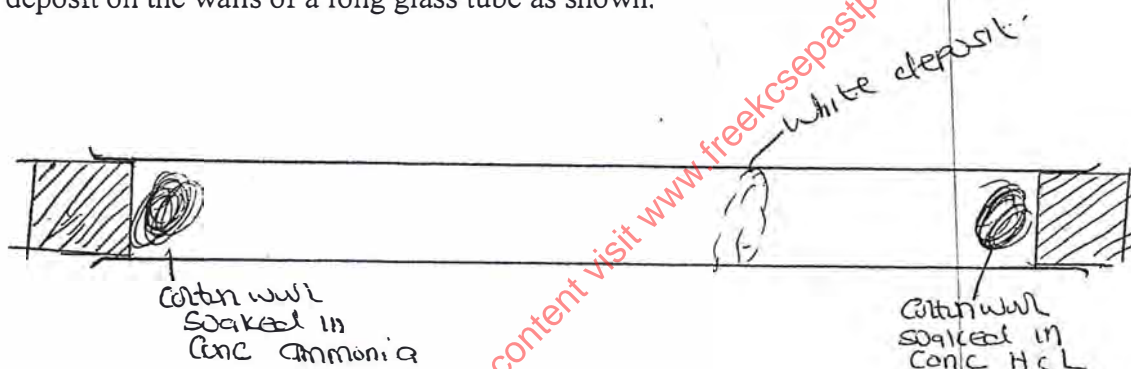


Fig. 4

(i) What conclusion can be drawn from the results of the experiment? (1mk)

.....

.....

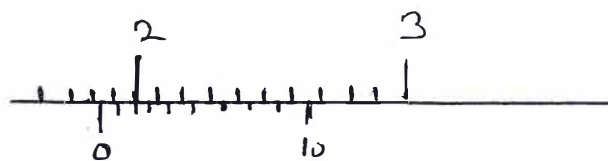
(ii) The experiment is performed at a lower temperature. Explain how the time taken to perform the white deposit would be affected. (2mks)

.....

.....

.....

9a) The figure 5 below shows a section of vernier calipers



State the reading of the vernier calipers.

(1mk)

b) In an experiment to determine the diameter of an oil molecule, state the assumptions made about:-

(i) Oil drop

(1mk)

(ii) Oil patch

(1mk)

(c) The volume of an oil drop is $4.0 \times 10^{-12} \text{ m}^3$. The drop forms a patch on the surface of water of area $2.0 \times 10^{-1} \text{ m}^2$, calculate the diameter of the oil molecule in metres (2mks)

10. When a highly positively charged rod is brought close to the cap of a negatively charged electroscope, the leaf initially decreases in divergence but as the rod is brought closer the divergence of the leaf increases again. Explain. (2mks)

11. Define current and state its SI unit.

(2mks)

.....

.....

12. A faulty thermometer reads 2°C when dipped in ice at 0°C and 95°C when dipped in steam at 100°C . What would this thermometer read if placed in water of temperature 18°C . (3mks)

.....

.....

.....

.....

for more free revision content visit www.freekcsepastpapers.com

SECTION B (65 MARKS)

13 a) A Density bottle of mass 18g when empty weighs 38g when filled with water and 35g when filled with liquid P. Determine :-

(i) The mass of water in the density bottle (1mk)

.....

(ii) The mass of liquid P in the density bottle (1mk)

.....

(iii) The density of liquid P in Kg/m^3 (2mks)

.....

.....

.....

b) $X \text{ cm}^3$ of substance A of density 710 Kg/m^3 is mixed with 100 cm^3 of water of density 1000 kg/m^3 . The density of the mixture is 0.85 g/cm^3 . Determine the value of x (4mks)

.....

.....

.....

.....

.....

c) Other than purifying a liquid, state any other method of increasing the surface tension of a liquid (1mk)

.....

(d) Distinguish between surface tension and up thrust force. (2mks)

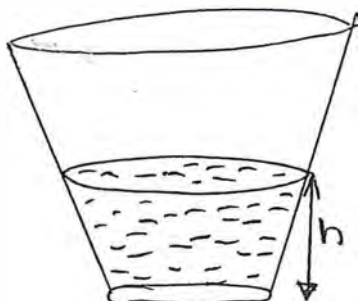
.....

.....

15(a) State Pascal's principle.

(1mk)

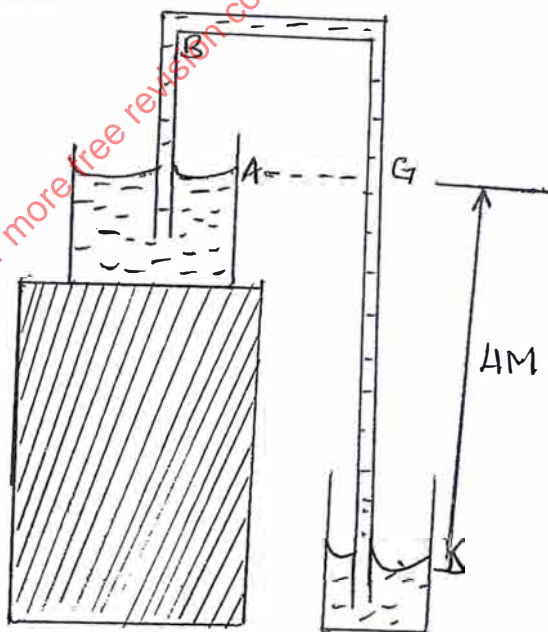
(b) The figure 6 below shows a bucket of base area 10cm^2 and containing 500g of water.



Determine the height, h , of the water column. (Density of water $= 1\text{g}/\text{cm}^3$)

(2mks)

(c) The figure 7 below shows how to empty water from large container into a low lying smaller container using a tube.



(i) Explain why the tube must be filled with water before emptying process start. (1mk)

.....
.....

(ii) Soon after the tank begins to empty the lower end is momentarily blocked by placing a finger. Determine the pressure difference between points A and D. (2mks)

.....
.....
.....

(iii) What will be the pressure experienced by the finger at point D given that density of water is 1000 Kg/m^3 and atmospheric pressure is $100,000 \text{ N/M}^2$ (2mks)

.....
.....
.....

16(a) The figure below shows a plane mirror, a candle in and the observer.

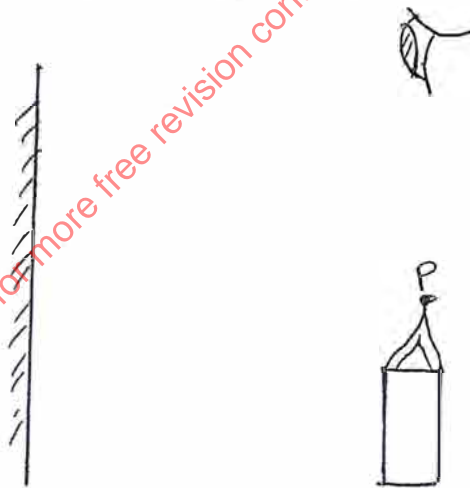


Fig 8

On the same diagram locate the image of point P of the candle

(3mks)

.....
.....

b) A lamp of height 6cm stands in front of a pinhole camera at a distance of 24cm. The screen of the camera is 8cm from the pin hole. Calculate the height of the image. (3mks)

.....

.....

.....

c) State any **two** factors that determines the time of exposure when using a pinhole camera. (2mks)

.....

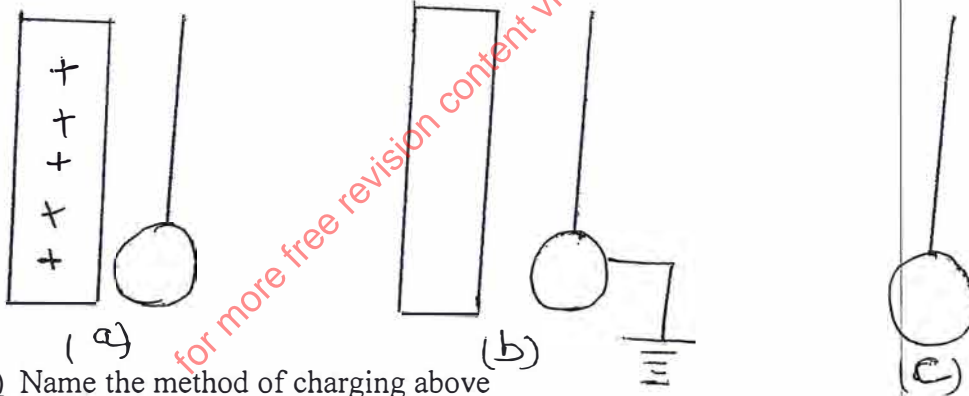
.....

17(a) When a rod was brought close to the cap of a positively charged electroscope, decrease in divergence was observed. State two possible reasons for this (2mks)

.....

.....

(b) A polythene ball coated with aluminum was charged in 3 stages as shown below.



(i) Name the method of charging above

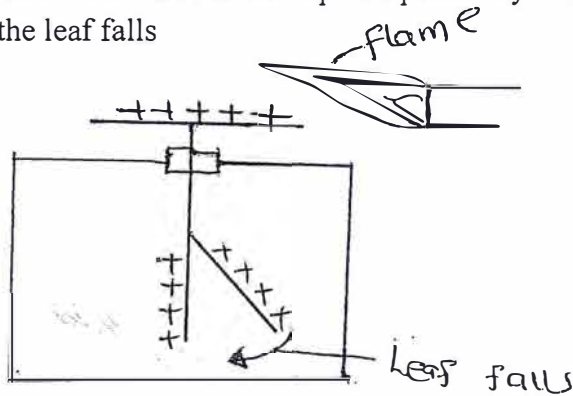
(1mk)

(ii) On the same diagrams above, Show the charge distribution on the polythene at each stage.. (3mks)

.....

for more free revision content visit www.freekcsepastpapers.com

c) When a flame is moved close to the cap of a positively charged electroscope as shown in the figure 9 below, the leaf falls



Explain the observation.

(2mks)

.....

.....

18 (a) One defect of a simple cell is local action. State how it can be minimized.

(1mk)

.....

b) A car battery requires topping up with distilled water occasionally. Explain why this necessary and why distilled water is used

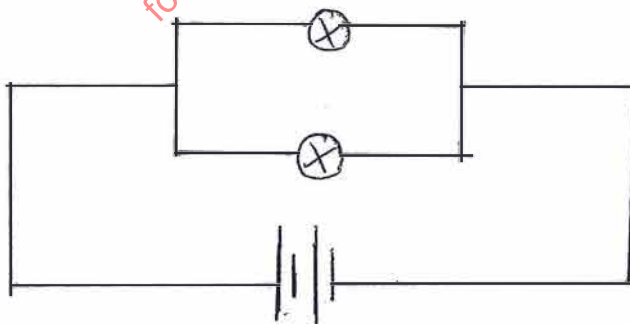
(2mks)

.....

.....

.....

c) The figure below shows two bulbs arranged in a circuit and connected to two cells.



(i) On the diagram indicate the direction of current

(1mk)

(ii) State **two** advantages of arranging bulbs in parallel as opposed to series.

(2mks)

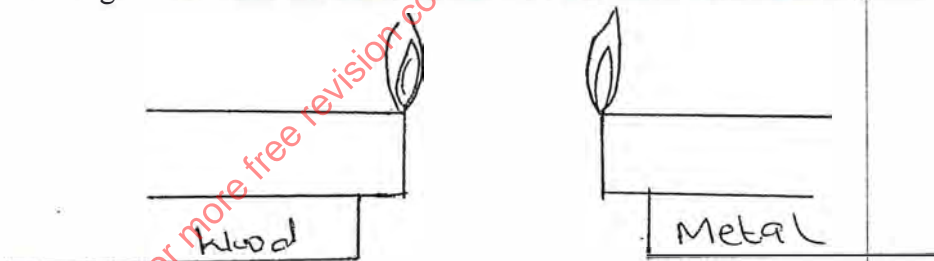
(d) A current of 0.8A flows in a circuit. Determine the quantity of charge that crosses a point in 20 minutes.

(3mks)

19(a) Differentiate between heat and temperature.

(1mk)

(b) the figure below shows two identical burning splints, placed on wood and metal blocks respectively. It was observed that when the flame reached the edge of the metal block, the splint was extinguished while the other on the wooden block continued to burn.



Explain the observation above.

(1mk)

.....

.....

.....

c) Explain how heat loss by

(i) Radiation is minimized in a vacuum flask

(1mk)

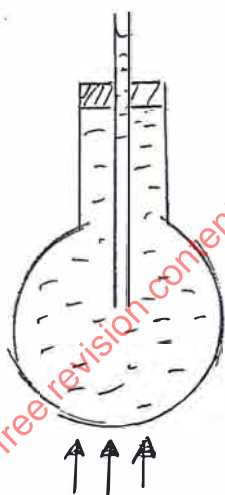
.....

(ii) Conduction is minimized in a vacuum flask.

(1mk)

.....

(d) The **figure 12** below shows a flask filled with coloured water. The rubber cork is pushed until the water rises a short distance in a glass tube.



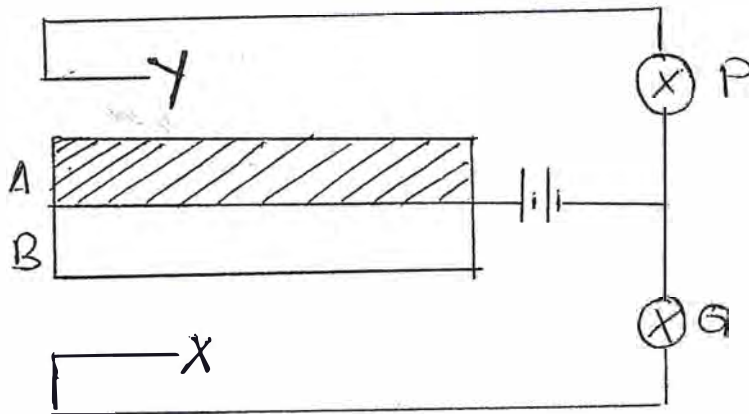
When the flask is cooled, it is noted that the level of water first rises and then drops. Explain this observation.

(1mk)

.....

.....

e) The figure below shows a bimetallic strip in an electric circuit made of two metals A and B. Metal B expands more than A.



X and Y are metal contacts while P and Q are identical bulbs. Explain the effect on the bulbs when ice cold water is poured onto the strip. (2mks)

.....

.....

.....

f) State any advantage of anomalous expansion of water (1mk)

.....

20.(a) What is meant by the term magnetic field (1mk)

.....

(b) Distinguish between soft and hard magnetic material

(2mks)

.....

.....

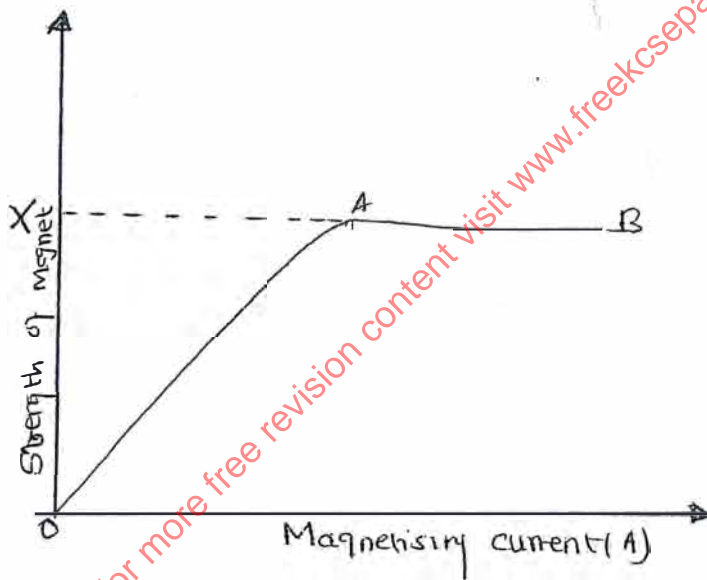
c) Explain why attraction is not the surest test for polarity.

(1mk)

.....

.....

d) The graph in the figure below shows the relationship between the strength of an electromagnet and the amount of magnetizing current.



(i) What does point x in the graph represent

(1mk)

.....

(ii) Explain the shape of the curve in terms of domain theory.

(2mks)

.....

.....

.....

.....

e) State **two** applications of magnets in day to day life.

(2mks)

.....

.....

for more free revision content visit www.freekcsepastpapers.com

**MAY THE
ALMIGHTY GOD
BLESS THE
WORK OF YOUR
HANDS**