NAME_____ **CLASS**_____

DATE _____ **SIGNATURE** _____

232
PHYSICS
FORM ONE
2ND TERM 2015
2 HRS.

Kenya Certificate of Secondary Education
PHYSICS
FORM ONE 2ND TERM EXAMINATION 2015

Instructions

- ***Write your name and your class in spaces provided***
- ***Answer all the questions in the spaces provided .***
- ***Mathematical tables may be used***
- ***All working must be Cleary shown where necessary***

For Examiner's Use Only

	Questions	Maximum score	Candidates score
A	1-14	25	
B	15-18	55	
TOTAL		80	

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

SECTION A-25 MARKS

ANSWER ALL THE QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED

1. ***Figure 1*** shows a piece of timber placed against an extracted portion of a meter rule. Study the diagram and answer the question that follows

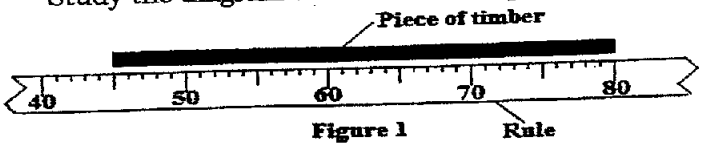

Figure 1

Determine the length of the piece of timber (2 marks)

2. A rim of duplicating papers of mass 2000g has 500 similar sheets of paper. Determine the mass of one sheet of paper in SI unit (3 marks)

3. The following are some branches of physics as a subject. Briefly explain what each branch involves (2 marks)

i) Geometrical optics

_____

_____

ii) Waves and oscillations

_____

_____

4. ***Figure 2*** below shows a toy boat placed impure water. Study the diagram and answer the questions that follow

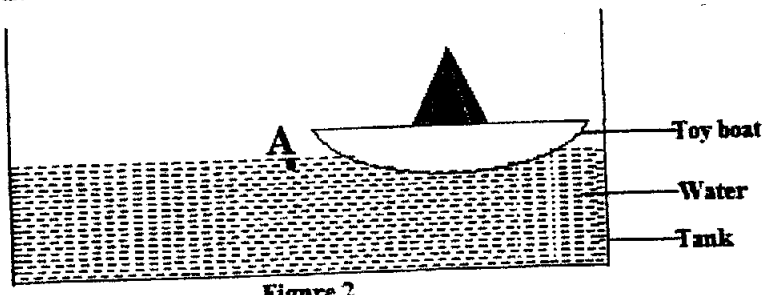

Figure 2

When drops of soap solution are added at point A, the toy boat is observed to move towards A. Explain this observation (2 marks)

_____

_____

5. Give a reason why while using the density bottle it should be held by the neck and not the body (1 mark)

_____

_____

6. Name two apparatus that are used for accurate measurement of volume (2marks)

_____

_____

7. During the determination of the upper fixed point of a thermometer, the thermometer is put in contact with the steam and not boiling water. Give a reason for this (1 mark)

_____

_____

8. Apart from temperature, state any other factor that affects the rate of diffusion in gases (1 mark)

_____

Figure 3 shows a set up for smoke cell experiment. Study it and answer the questions that follow

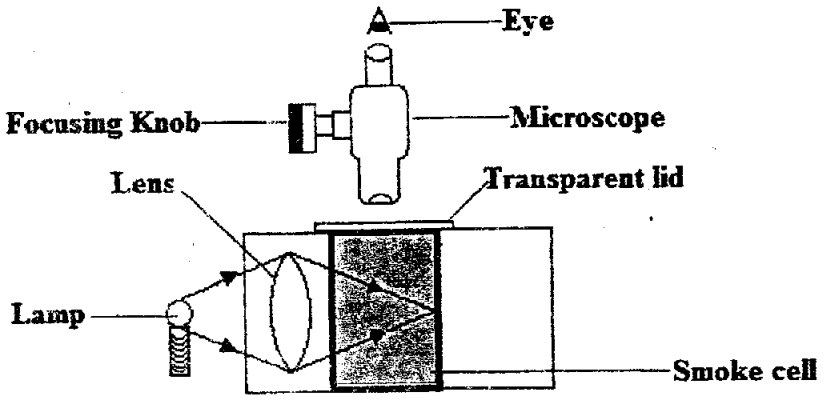

Figure 3

State the purpose of the lens (1 mark)

_____

_____

9. State the one factors that affect pressure in liquids (1 marks)

_____

_____

10. ***Figure 4*** shows arrangement of two apparatus. Water is being transferred from the burette to a measuring cylinder in drops

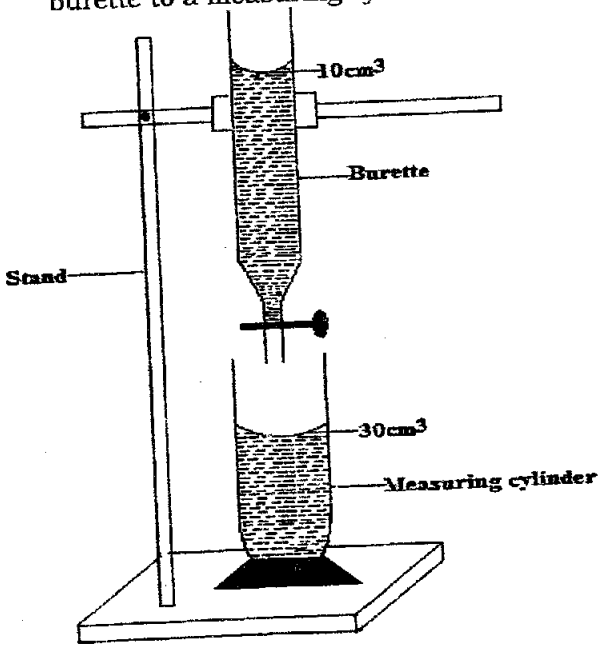

Figure 4

Given that 40 equal drops each of volume 0.2 cm^3 were added to the measuring cylinder, determine (2 marks)

a) The new reading of the burette

(2 marks)

b) The new reading of the measuring cylinder

11. The height of mercury column in a measuring cylinder is 760mm. Given that the density of mercury is 13600kg/m^3, determine the pressure exerted by the column of mercury (2 marks)

12. ***Figure 5*** shows an instrument used for measuring atmospheric pressure. Study it and answer the questions that follow

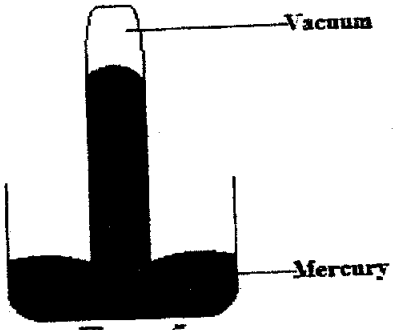

Figure 5

Name the instrument (1 mark)

_____

_____

13. Give one reason why mercury is preferred to water for use in the instrument (1 mark)

_____

_____

14. When a drop of blue ink is introduced into a beaker full of clear water, it is observed that the whole liquid forms a homogenous blue solution after sometime. Name the process involved. (1mark)

_____

SECTION B -55 MARKS

ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED

15.a) Define the term pressure and state its **SI** unit (2 marks)

_____

_____

b) State Pascal's principle (1 mark)

_____

_____

c) State any two properties of a good brake fluid (2 marks)

_____

_____

d) ***Figure 6*** below shows a glass block of mass 40kg placed on a soft ground. Study it and answer the questions that follow

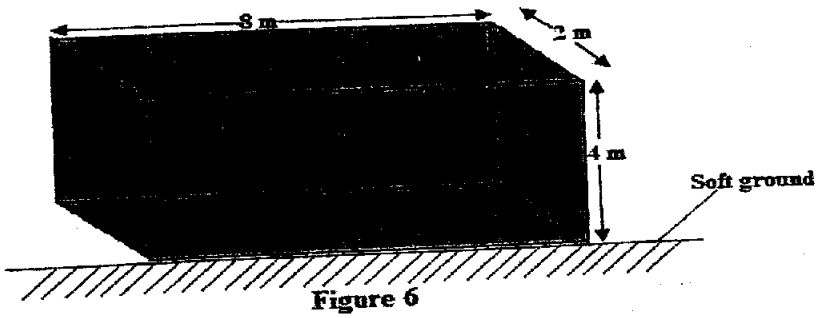

Figure 6

i) Determine the
Weight of the glass block (2 marks)

ii) Maximum area of the glass block (2 marks)

iii) The minimum area of the glass block (2 marks)

v) The maximum pressure exerted by the glass block on the soft ground (2 marks)

16.a) Name any two force that acts between two bodies that are not in contact (2 marks)

b) Explain the meaning of the following forces as used in physics (2 marks)

17a) Differentiate between the terms heat and temperature (2 marks)

b)i) When a block of metal is heated, it expands. Explain how expansion occurs in the metal block (2 marks)

ii) Give a reason why gases expand more liquid s for the same temperature rise (1 mark)

c) State two applications of thermal expansion and contraction in solids (2 marks)

d) ***Figure 8*** shows a clinical thermometer. Study the diagram and answer the questions that follow.

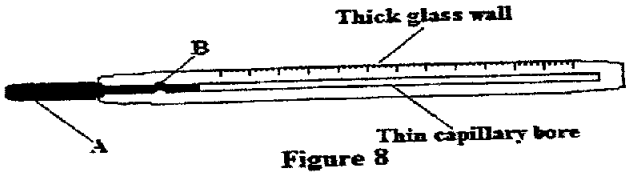

Figure 8

i) Name the parts labeled A and B (2 marks)

ii) State the function of the thick glass wall (1 mark)

iii) Give a reason why the capillary bore is very narrow (1 mark)

c) Friction as a force is considered as a necessary evil. Give one advantage and disadvantage of friction

Advantage (1 mark)

Disadvantage (1 mark)

d) ***Figure 7*** below shows the level of two different liquids **A** and **B** in capillary tubes of same cross-section area. The volumes of the two liquids are equal. Study the diagram and answer the questions that follow

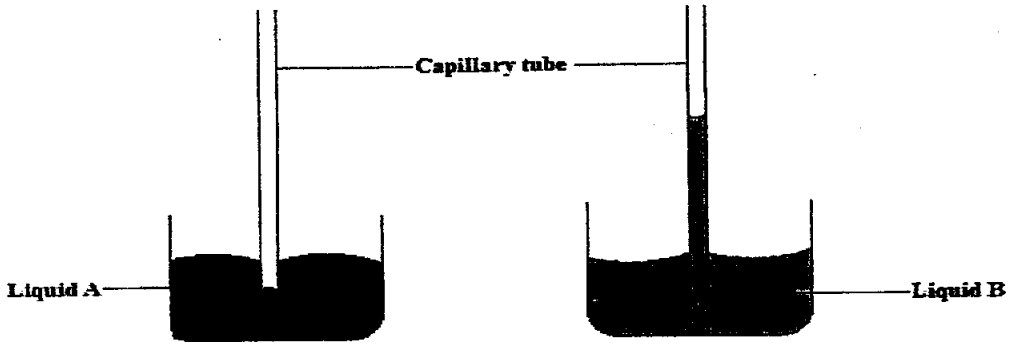

Figure 7

i) Which of the liquid is water? Explain your answer (2 marks)

ii) Explain the differences in the level of liquid A and B in the capillary tubes (3 marks)

e) A body of mass 20kg weighs 500N in a given planet. Determine the gravitational pull of the planet (3 marks)

iv) Give a reason it is not appropriate to use boiling water to sterilize clinical thermometer (1 mark)

_____

_____

e) A faulty mercury thermometer stands at 5° mark when placed in melting ice and at 95° mark when placed in steam at normal pressure. Determine the reading on this thermometer when it is in contact with a body whose temperature is 40° (3 marks)

18.a) Define the term density and give its SI unit (2 marks)

_____

_____

b) In an experiment to determine the density of glass using a density bottle, the following measurements were recorded:
Mass of empty density bottle = 43 .2g
Mass of density bottle full of water = 66 .4g
Mass of density bottle with some glass = 67.5g
Mass of density bottle with the glass and filled up with water = 82.3g
Use the above data to determine the:

i) Volume of water that completely filled the bottle; (3 marks)

ii) Volume of the density bottle; (2 marks)

iii) Mass of water that filled the space above the glass; (2 marks)

iv) Volume of the glass; (3 marks)

v) Density of the glass. (2 marks)