NAME: ……SIGN:……

SCHOOL:……INDEX NO:……

DATE:……

232/1
PHYSICS PAPER 1(THEORY)
MAY 2026
TIME: 2 HOURS

KABRAS WEST SUB COUNTY JOINT EVALUATION - 2026

(Kenya Certificate of Secondary Education)

INSTRUCTIONS TO CANDIDATES

(a) Write your name, school and index number in the spaces provided above.
(b) Sign and write the date of the examination in the spaces provided
(c) This paper consists of TWO Sections: A and B. Answer ALL the questions in section A and B in the spaces provided.
(d) All working MUST be clearly shown.Use the constant g=10N/kg or 10m/s^2
(e) KNEC mathematical tables and silent non-programmable electronic calculators may be used except where stated otherwise

FOR EXAMINER'S USE ONLY

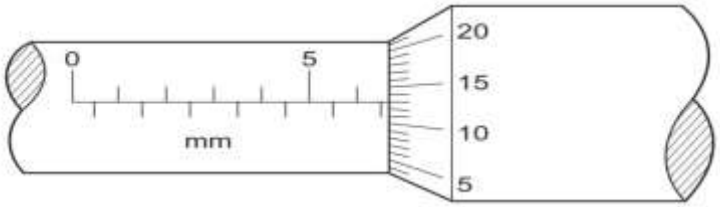
SECTION	QUESTION	MAX MARKS	CANDIDATE'S SCORE
A	1 – 10	25	
B	11	13	
	12	11	
	13	07	
	14	12	
	15	12	
TOTAL SCORE		80	

This paper contains 12 printed pages. Ensure that you have all the pages, all of them printed.

SECTION A (25 MARKS)

Attempt all the questions in the spaces provided.

1. **Figure 1** shows a micrometer screw gauge. State the reading indicated (2marks)



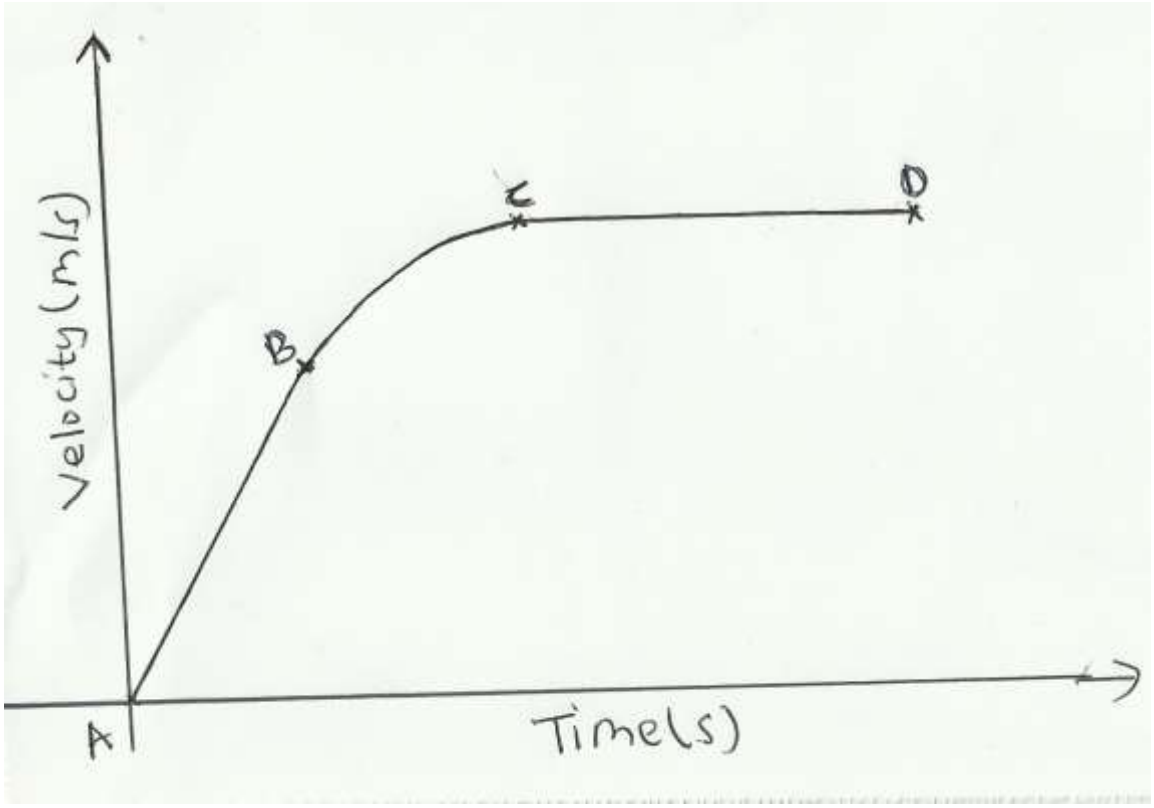
2. When mercury in a glass thermometer is used to measure the temperature of hot water, it is observed that the mercury level first drops before beginning to rise. Explain. (2 marks)

3. Fifty drops of oil have a volume of $1.0cm^3$.If a drop of oil forms an oil patch of diameter 20cm,determine the size of the oil molecule. (2marks)

4. (a)State newton's third law of motion. (1mark)

(b)A man whose mass is 70kg stands on a weighing machine.When the lift ascends with an acceleration of $2.45m/s^2$,what is the reading on the scale.(2marks)

5.The **Figure 2** below shows a sketch graph of velocity time graph for a body falling through a liquid. Explain the motion of the body between;



(a) A and B (1mark)

(b)B and C (1mark)

(c) C and D (1mark)

6.In a faulty mercury-in-glass thermometer was found that the mercury level stands at 3 cm mark in the tube at 0^0 C and 18 cm when in steam above boiling water at normal atmospheric pressure. Calculate the temperature when the mercury stands at 12 cm mark. (2marks)

7.A balloon filled with argon gas of volume 200 cm^3 at the earth's surface where the temperature is 20^0C, and the pressure 760mm of mercury. If it is allowed to ascend to a height where the temperature is 0^0C and the pressure 100mm of mercury, calculate the volume of the balloon.(2marks)

8.(a) **Figure 3** shows two identical springs of spring constant 3N/cm supporting a load of 30N.

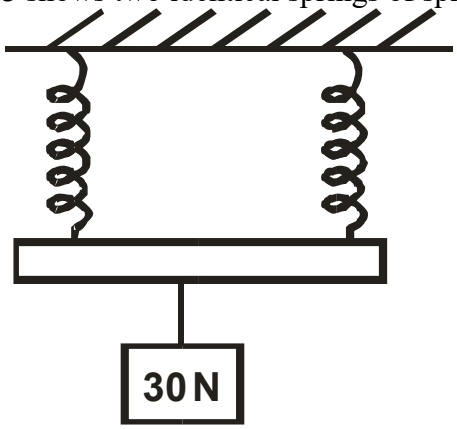


Figure 3

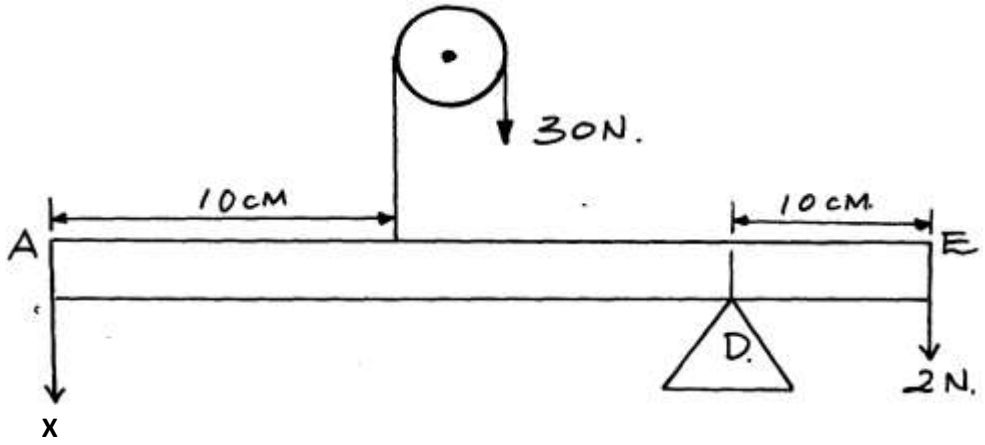
Determine the extension of each spring. (2 marks)

(b) Apart from length of the spring and nature of material, state one other factor affecting the spring constant. (1mark)

9.State two conditions necessary for a body to be in equilibrium . (2marks)

10.(a) How does the position of the centre of gravity affect the stability of a body? (1mark)

(b)**The Figure 4** below shows a uniform rod **AE** which is 40cm long. It has a mass of 2kg and pivoted at **D**. If 2N is acting at point **E**, and 30N force is passed through a frictionless pulley



Find the force X acting at end **A** (3marks)

SECTION B (55 MARKS)

Attempt all the questions in this section.

11.(a)Sketch a block and tackle pulley system with three movable pulleys in the lower block and two fixed pulleys in the upper block. (2marks)

Find:

(b) (i)Velocity ratio (V.R.) (1mark)

(c)An effort of 450 N is used to raise a load of 2700N.Determine:

i) Mechanical advantage (M.A) (2marks)

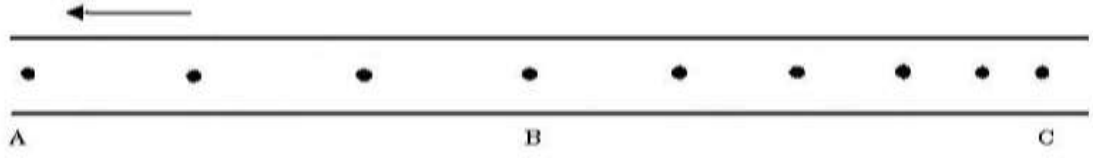
ii) Efficiency of the pulley system. (2marks)

(d)If all the wasted energy is used to raise the lower block and the frictional force between the pulleys and moving parts is 3.6N; determine the weight of the lower block. (2marks)

(e)If the load moved through a distance of 50cm, determine the useful work done by the effort. (3marks)

(f) James applied a force of 400N in pushing a stationery wall. If he took one hour to push the wall, calculate the power developed. (1mark)

12(a)The **Figure 5** below shows dots which were made by a ticker timer-tape attached to a trolley. The trolley was moving in the direction shown.



If the frequency used was 50 Hz, distance A$B = 12cm\ and\ BC = 7.2cm$, determine

i) the velocities between AB and BC (2marks)

ii) the acceleration of the trolley. (2marks)

(b) An object is released to fall vertically from height of 100m. At the same time another object is projected vertically upward with velocity of 40m/s.

(i) Calculate the time taken before the objects meet

(3marks)

(ii) At what height do the objects meet? (2marks)

(c)State two assumptions that were made when deriving the equation of continuity. (2marks)

13.**(a)** State Archimedes' principle (1 mark)

(b)A block of length 50 cm, cross-sectional area of $5cm^2$ and density 1.4 g/cm^3 is completely immersed in a liquid of density 1.08 g/cm^3 find

(i) The mass of the block (2 marks)

(ii) The weight of the block in the liquid. (2 marks)

(iii) The apparent loss in weight of the block if three quarter of it is immersed in the liquid. (2 marks)

14.a) **Figure 6** shows the features of a refrigerator.

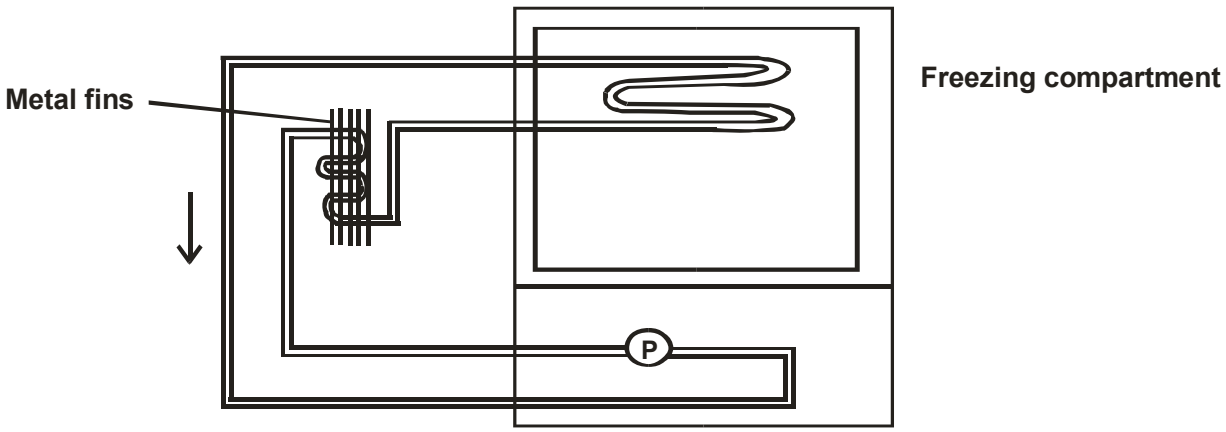


Figure 6

i) What is the function of the pump P? (1 mark)

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ii) What is the function of the copper fins at the back of the refrigerator? (1 mark)

iii) Explain briefly how cooling takes place in the refrigerator. (3 marks)

iv) What is the purpose of the double wall in a refrigerator? (1 mark)

b) i) Define the term latent heat of fusion of a substance. (1 mark)

ii) **Figure 17**shows an apparatus that could be used to determine the specific latent heat of fusion of ice.

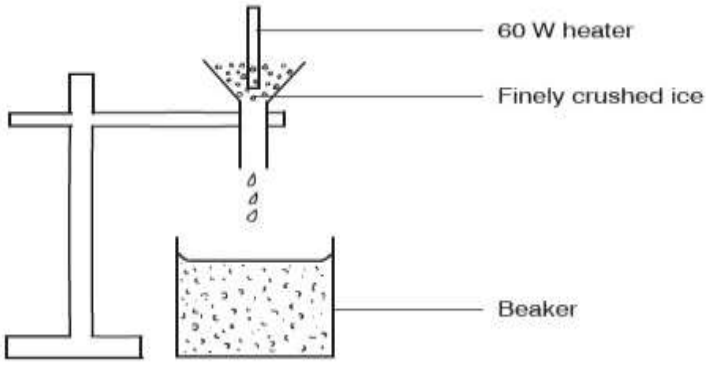


Figure 7

In order to obtain results that are as accurate as possible, state why it is important to:

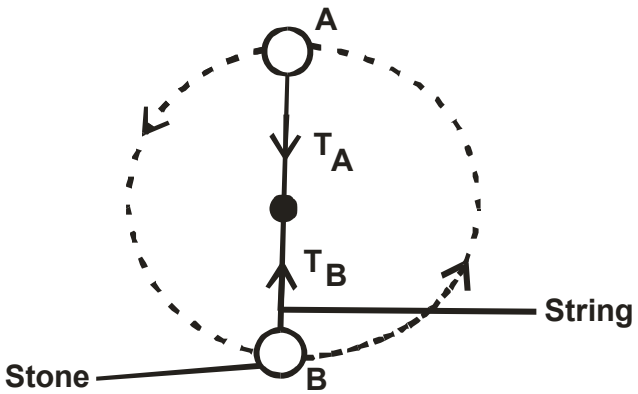
i) Wait until water is dripping into the beaker at constant rate before taking readings (1mark)

ii) Use finely crushed ice rather than larger ones. (1 mark)

iii) You are provided with the following apparatus:
A filter funnel, a thermometer, a stop watch, ice at 0°C, an immersion heater rated P watts, a beaker, a stand, boss and clamp and a weighing machine.
Describe an experiment to determine the specific latent heat of fusion of ice. Clearly state the measurements to be made. (3 marks)

15. a) State two condition necessary for a driver to negotiate a bend on a banked road at a relatively high speed (2 marks)

(b).The **Figure 8** shows stone of mass 100g whirled in a vertical circle using a thread of length 56cm.(Take g 10N/Kg)



If the stone is whirled at a speed of 8m/s. Calculate;

i) The centripetal force experienced by the stone. (3 marks)

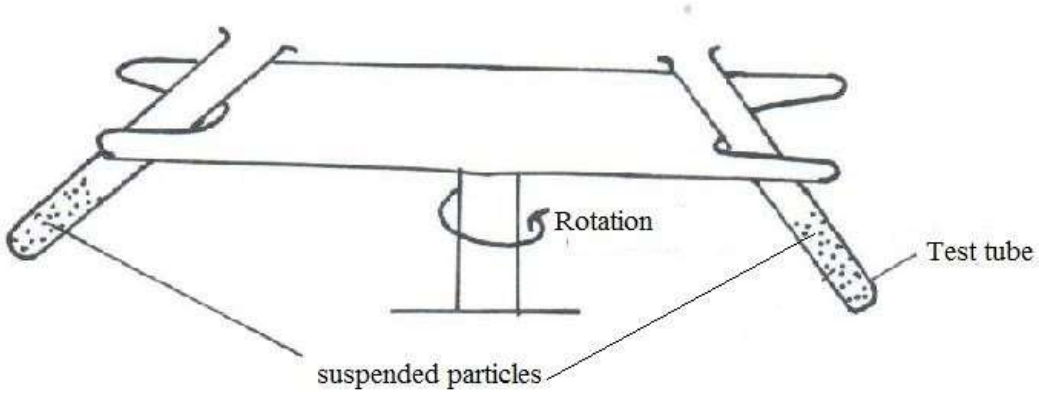
ii) Tension force on the string at:

I) A (2 marks)

II) B (2 marks)

iii) Calculate the angular velocity of the stone. (1mark)

(d)**Figure 9** shows a centrifuge that is used to separate particles suspended in a liquid.



Particle of different mass M_1, M_2 and M_3 are suspended in a liquid which they do not dissolve. The system is then rotated in the direction shown.

(i).State why the particles of different masses will acquire different radii as the system is rotated. (1 mark)

(ii). If $M_3 > M_2 > M_1$, arrange the particle in increasing radii when the centrifuge is rotated for some time. (1 mark)

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