Name ……..…… **Index No. ..……..…….…**

School ……... **Candidates Sign: ……...…..…**

Date: ……..

232/1
PHYSICS
Paper 1
July / August – 2008
Time: 2 Hours

NYANDO DISTRICT JOINT EVALUATION TEST - 2008

Kenya Certificate of Secondary Education (K.C.S.E)

232/1
PHYSICS
Paper 1
July / August – 2008
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Answer all questions in section A and B in spaces provided.
- ALL working MUST be clearly shown.
- Mathematical tables and electronic calculators may be used.

FOR EXAMINERS USE ONLY

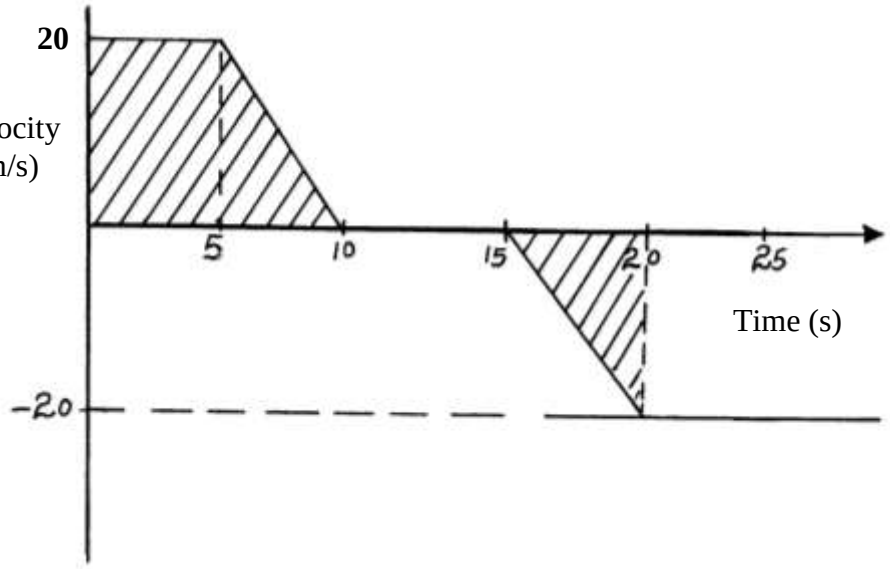
SECTION	QUESTION	MAX. SCORE	CANDIDATE'S SCORE
A	1 – 11	25	
B	12	10	
	13	09	
	14	10	
	15	13	
	16	13	
TOTAL SCORE		80	

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

SECTION A (25 Marks)

Answer ALL the questions in the spaces provided.

1. Figure 1 is a velocity – time graph describing the motion of a particle.

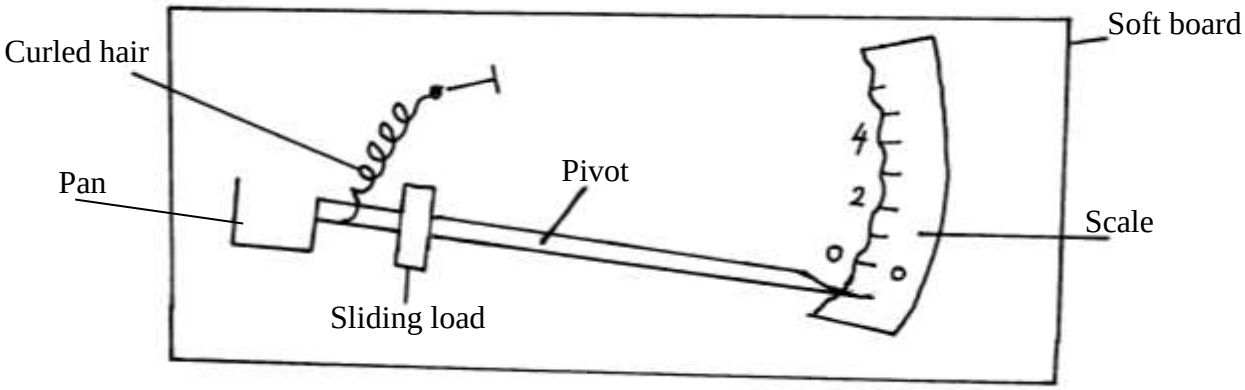


What does the shaded area represent? (1 mk)

2. A hole of diameter 1.0mm is made in the side of a water pipe. If the pressure of the flow is maintained at 3.0×10^6 Nm^{-2}, calculate the force with which the water jets out of the hole.

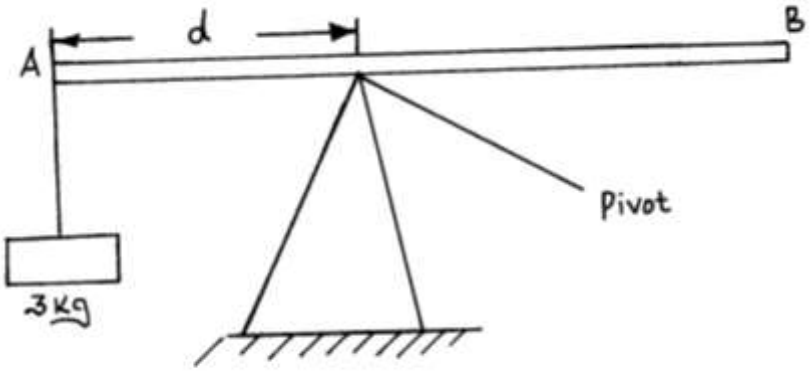
(3 mks)

3. Figure 3 below shows the arrangement of a sensitive spring balance.



How would you adjust the position of the sliding load to reset its reading to zero? (1 mk)

4. The diagram in fig. 3 below shows a uniform wooden plank of length 4 metres and weight 10N. The plank is balanced at a distance d from one end by a mass of 3Kg.



Determine the distance d. (3 mks)

5. Explain why a glass container with thick glass walls is more likely to crack than one with a thin wall when a very hot liquid is poured into them. (2 mks)

6. A bullet is fired horizontally from a flat form 15m high. If initial speed is $300ms^{-1}$, determine maximum horizontal distance covered by bullet. ($g = 10ms^{-2}$) (3 mks)

7. In an experiment to show the relationship between force and extension of a spring the results obtained were used to plot the graph shown in fig. 4 below.

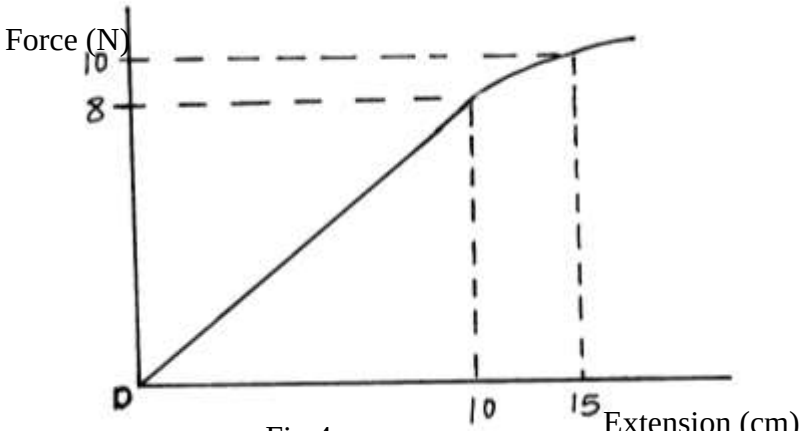
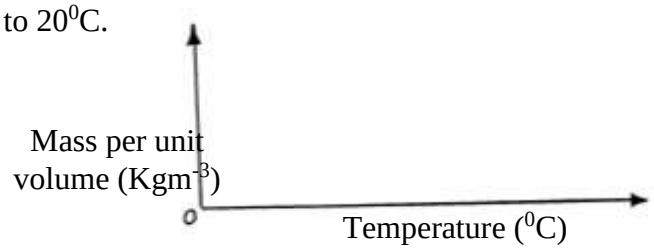


Fig 4

Determine the work done on the spring by a force of 8N. (3 mks)

8. Sketch on the set of axis below a graph of mass per unit volume of water against temperature from 0^0C to 20^0C. (2 mks)



9. Fig. 5 represents a transverse wave of frequency 5Hz traveling in the *x* direction.

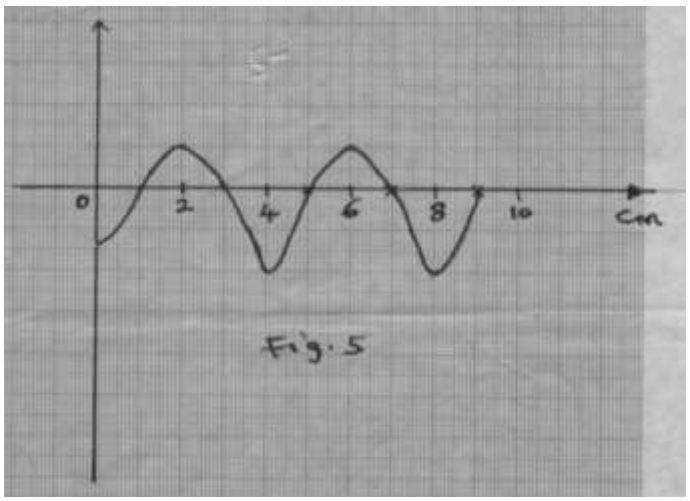
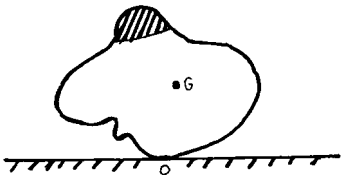


Fig. 5

Determine the speed of the wave. (3 mks)

10. Fig. 6 represents a rock balanced at point O. G is the centre of gravity of the rock. Use this information to answer questions 10 and 11.



Draw and label on the fig the force acting on the block. (2 mks)

11. If the portion of the rock represented by the shaded part is chopped off. Explain why the rock may topple to the right. (2 mks)

SECTION B (55 Marks)

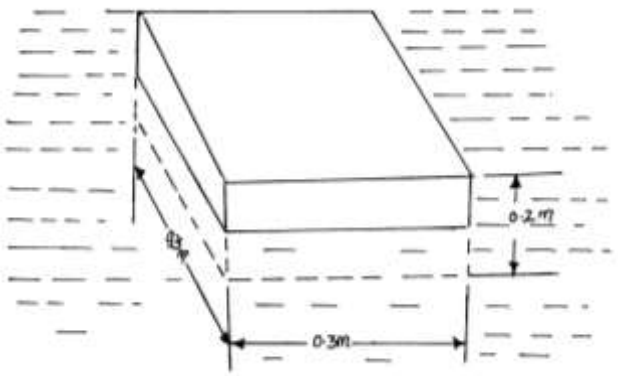
Answer All the questions in the spaces provided.

12. a) Hot milk in a bottle cools faster when wrapped in a wet cloth than when the bottle is immersed in cold water in a bucket. Explain why. (3 mks)

b) 5 grammes of water at 20^0C is heated until it boils at 95^0C. On further heating the temperature of water does not change until it has all evaporated.
(i) State what happens to the energy supplied to the water after attaining a temperature of 95^0C. (1 mk)
(ii) Calculate the amount of heat required to convert all the 5g of water to steam.
(Latent heat of vaporization of water = 2260000 J/Kg) (6 mks)

13. a) What is the difference between kinetic energy and potential energy. (1 mk)
b) A man in a construction site lifts concrete mix in containers using a pulley system where velocity ratio is 2. The pulleys lift the mix to a height of 3.2m. The man exterts an effort of 80N to lift a mix of 144N.
(i) Determine the useful work done by the man. (2 mks)
(ii) What is the mechanical advantage of the system. (2 mks)
(iii) Calculate the efficiency of the pulley system. (3 mks)
(iv) Is the efficiency equal to or less than 100%? Explain your answer. (1 mk)

14. The diagram in fig. 7 below shows a block of wood floating to a depth of 0.18m in water.
(Density of water = 1000Kg/M^3)



a) Determine;

(i) Mass of the wood. (3 mks)

(ii) The density of the wood. (2 mks)

b) Determine the number of frogs each of mass 500g which will make the block of wood to be just submerged if they sit on the block. (5 mks)

15. a) Distinguish between distance and displacement. (1 mk)

b) A stone was thrown vertically upwards at an initial velocity of '*u*' and its height above the starting point measured and represented in the table below.

Time (s)	0	1	2	3	4	5	6	7
Height (m)	0	45	80	105	120	125	120	105

I. Plot a graph of height against time for the motion of the stone. (5 mks)

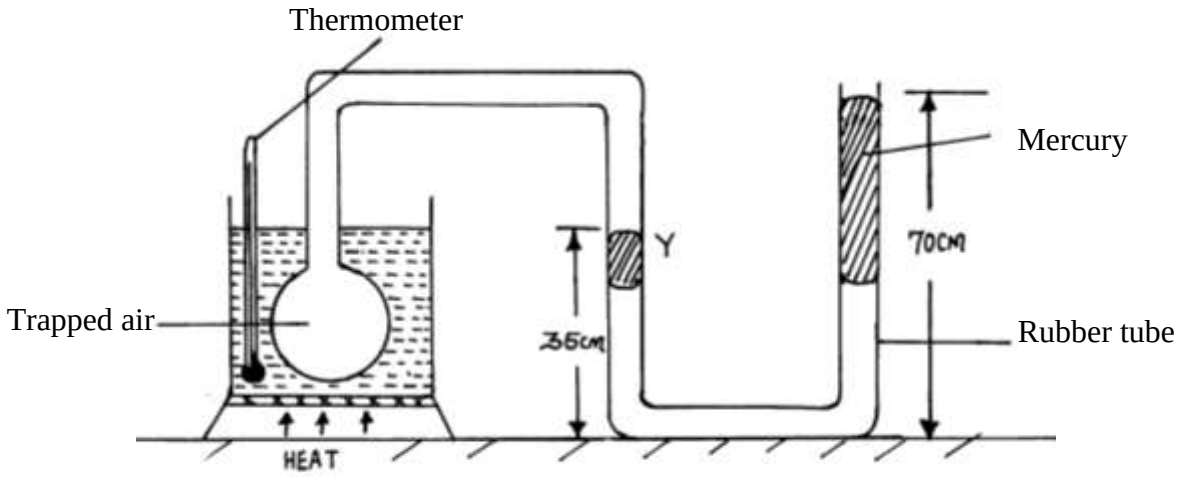
II. From your graph, determine;

(i) Velocity of the stone at 2.5 seconds and 4.5 seconds. (4 mks)

(ii) The acceleration due to gravity at the place the experiment was done. (2 mks)

(iii) The maximum height reacted by the stone. (1 mk)

16. Fig. 8 shows the apparatus that a student used to investigate the relationship between temperature and pressure of a fixed mass of a gas at constant volume.



a) (i) Describe how the student should ensure that all air trapped has the same temperature as indicated by the thermometer. (2 mks)

(ii) Give a reason why it is necessary to ensure that before taking any reading on pressure, the liquid level should reach the level marked Y. (1 mk)

(iii) Using the measurements given in the diagram, determine the total pressure of the trapped air. (Giver your answer in cmHg, atmospheric pressure = 76cmHg) (3 mks)

(iv) State the law the student was investigating. (1 mk)

b) (i) A block of wood of mass 50g is placed 8cm from the centre of a disk which makes 2 revolutions in one second.

(i) Calculate the centripetal acceleration. (1 mk)

(ii) Calculate the frictional force between the block and the disc. (3 mks)