

NAME:.....INDEX NO:.....

SCHOOL:.....

Candidate's Signature:

Date:

232 / 1
PHYSICS
PAPER 1
JULY / AUGUST 2008
2 HOURS

LARGER BUNGOMA DISTRICT MOCK EXAMINATION Kenya Certificate Of Secondary Education 2008

232 / 1
PHYSICS
PAPER 1

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
 - ❖ This paper consists of two sections, A and B.
 - ❖ Answer **all** the questions in the spaces provided
 - ❖ All working must be clearly shown
 - ❖ Non programmable silent electronic calculators and KNEC Mathematical tables **may** be used except where stated otherwise.
- Take acceleration due to gravity $g\ 10\text{ms}^{-2}$

For Examiners Use Only

Section	Question	Maximum Score	Candidates' Score
A	1 – 14	25	
B	15	15	
	16	15	
	17	13	
	18	12	
	Total Score	80	

This paper consists of 12 printed pages. Candidates should check the question paper to ensure that all the pages are printed as indicates and no questions are missing.

SECTION A (25 MARKS)

Answer all questions in this section in the spaces provided.

Figure 1 below show parts of vernier callipers when the Jaws are closed without an object between them. Use the information to answer question 1 and 2.

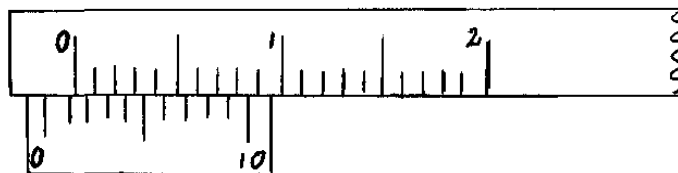


Figure 1

1. **State** the error of the vernier callipers in figure 1. (1mk)

2. A student used the vernier callipers to measure the diameter of the a test tube and read it to be 1.76cm. **Determine** the actual diameter of the test tube. (2mks)

3. **Explain** why you can dry your hands with a towel but not with a sheet of polythene. (1mk)

4. A bubble of air of volume 1cm^3 is released by a deep-sea diver at a depth where the pressure is 4.0 atmospheres. Assuming its temperature remains constant ($T_1 = T_2$) **what** is its volume just before it reaches the surface where the pressure is 1.0 atmosphere? (3mks)

5. **Explain** why a shiny tea pot stays hotter than a dull brown tea pot. (1mk)

6. A student put some small pieces of ice in a beaker and sprinkled salt on the ice. He stirred until the ice melted and took the temperature of the content in the beaker- as shown in figure 2

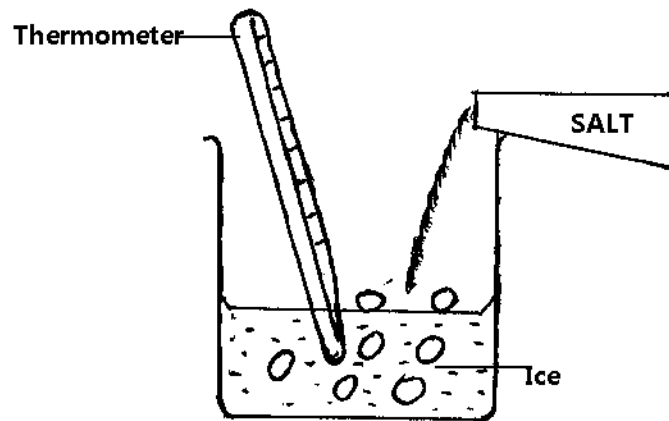


Figure 2

- (i) **State** the observation made. (1mk)

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- (ii) **Explain** the observation. (1mk)

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7. Using the idea of particles **explain** why the pressure inside the tyre increases when the tyre is pumped up. (2mks)

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8. **State** Newton's third law of motion. (1mk)

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9. **Explain** why a hole in a ship near the bottom is more dangerous than one nearer the surface. (2mks)

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10. Figure 3 below shows a piece of wood in equilibrium. The spring balance reads 5.5 N .

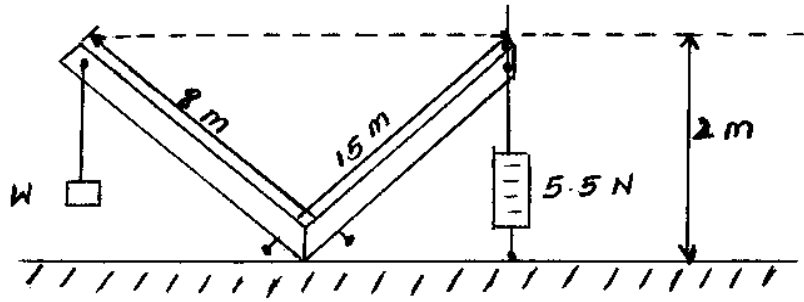


Figure 3

Determine the weight W keeping the wood in equilibrium. (4mks)

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11. **Explain** why it is difficult to steer a bi cycle by gripping the centre of the handlebars. (2mks)

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12. **Write down** what provides for the centripetal force when a cyclist negotiating a corner on a road. (1mk)

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13. Figure four below shows the forces acting on a rain drop which is falling to the ground.

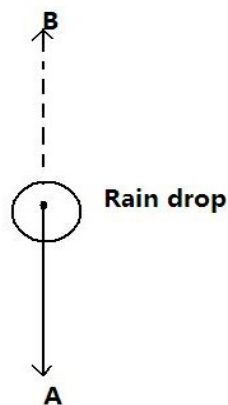


Figure 4

- (i) A is the force which causes the rain drop to fall. **What** is this force called? (1mk)

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- (ii) B is the total force opposing the motion of the drop. **State one** of the possible causes of this force. (1mk)

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- (iii) **Write down** an equation to show the condition when force A = force B and **state** what happen to the rain drop. (2mks)

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SECTION B (55 MARKS)

14. (a) The circuit in figure 5 below is often used in cars.

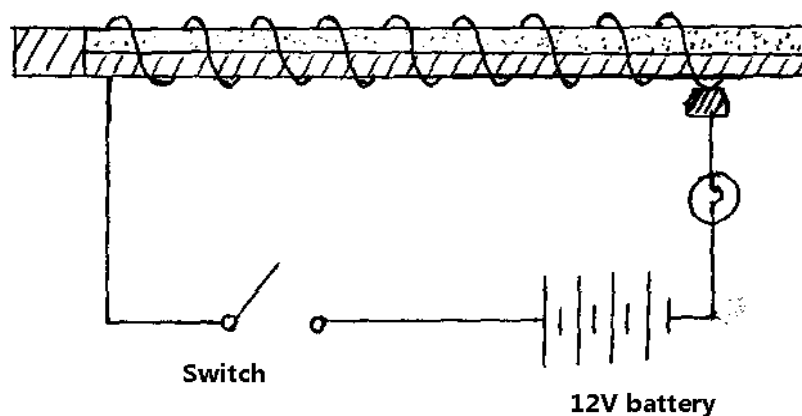


Figure 5

- Briefly** explain how the above unit is used in the car. (3mks)

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- (b) A plump was used to suck air bubbles through a tank of ether resting on a saucer of water as shown in figures 6.

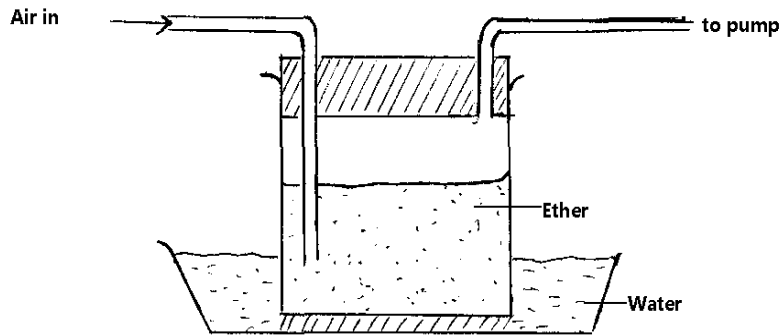


Figure 6

- (i) **State** the observation and **explain** how it occurs. (2mks)

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- (ii) **Name** a domestic device in which the idea above is used. (1mk)

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- (c) If the specific latent heat of ice is 340000 J/kg and the specific latent heat of steam is $2,300,000 \text{ J/kg}$ and the specific heat capacity of water is $4200 \text{ Jkg}^{-1}\text{K}^{-1}$ **calculate** the heat needed to change 2kg of ice at 0°C to steam at 100°C . (4mks)

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15. (a) **What** is meant by the term the velocity ratio of a machine? (1mk)

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- (b) Figure 7 shows a pulley system used to lift a load.

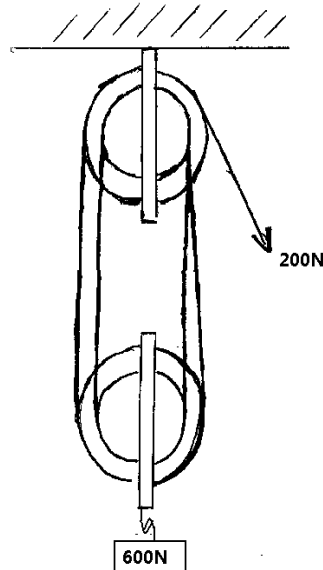


Figure 7

- (i) **Determine** the velocity ratio of this machine. (1mk)
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- (ii) **Calculate** the work done by the effort in lifting the load through 1metre. (3mks)
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- (iii) **Calculate** the percentage (%) efficiency of the machine. (3mks)
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- (c) The machine wheel and axle has a lot of application in real life. **Name any two** practical examples of such machine. (2mks)
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16. (a) A watchman uses a bow to fire an arrow of mass 0.2kg vertically upwards into the air.

- (i) The watchman stretches the bow by 0.15m with a maximum force of 100N. **Calculate** the energy transferred to the arrow. (3mks)

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- (ii) **Calculate** the speed with which the arrow leaves the bow assuming all energy is transferred to the arrow. (2mks)

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- (iii) **Determine** the greatest height reached by the arrow before it begins to fall. (3mks)

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- (iv) **Determine** the time the arrow will remain in the air. (3mks)

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17. (a) **State** what is meant by absolute zero temperature. (1mk)

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- (b) **What** are the molecular differences between a real gas and ideal gas? (2mks)

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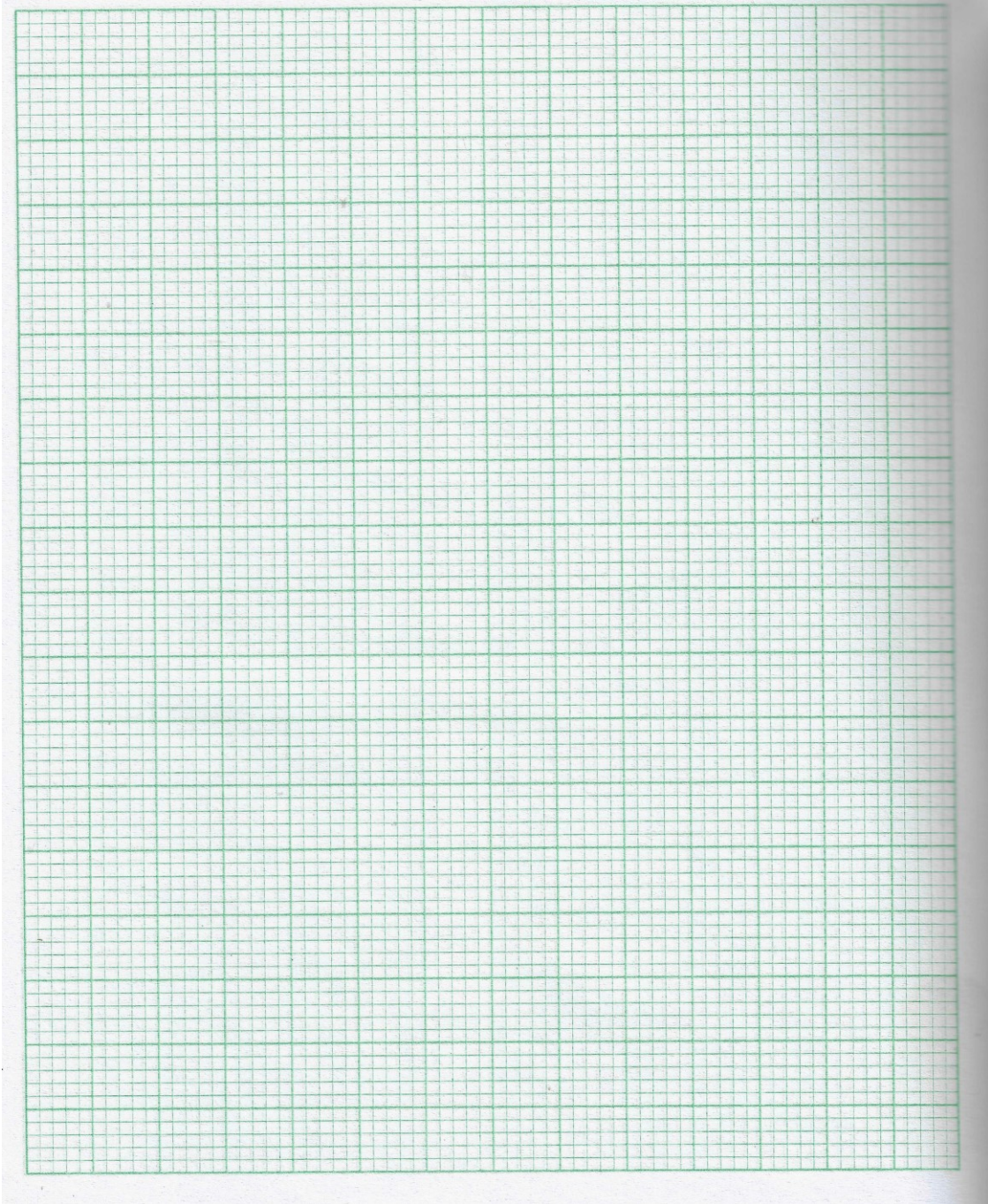
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- (c) In an experiment to find the relationship between volume and temperature of a given mass of air at constant pressure the following results were obtained

Volume (cm ³)	31	33	35	38	40	43
Temperature(°C)	0	20	40	60	80	100

- (i) Plot an appropriate graph to show the relationship between volume and temperature.



- (ii) Use the graph to **calculate** the increase in volume of the air per unit rise in temperature. (3mks)

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- (iii) **Give a reason** why the volume of a real gas can not be reduced to zero by cooling. (1mk)

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18. Figure 8 below shows a spinning ball in air.

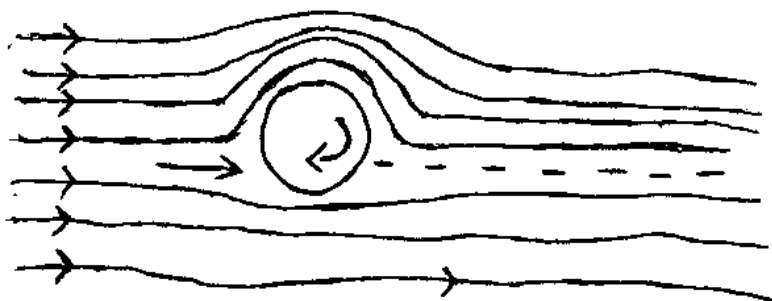


Figure 8

- (i) On the figure **show** the path the ball will take. (1mk)

- (ii) **Explain** why the ball takes the path you have indicated above. (2mks)

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- (b) A fisherman on a boat offloads fish from the boat by throwing them to the land:

- (i) **State two** observable changes as he resumes fishing. (2mks)

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- (ii) **Give** reason for your answer in (i) (2mks)

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- (c) A car ferry has a uniform cross-sectional area of 1000m^2 and floats in water of density 1000kgm^{-3} . **How** deep will it sink if 10 cars each of mass 1000kg are taken aboard? (3mks)

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- (d) **Explain** how a submarine can be made to float and sink in the sea. (2mks)

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