Name ……..…… Index No. ..…….

School ……...

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

TRANS – NZOIA EAST DISTRICT MOCK EXAMINATION – 2008
Kenya Certificate of Secondary Education (K.C.S.E)

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

INSTRUCTION TO CANDIDATES

- The paper consists of two sections; A and B.
- Answer ALL the questions.
- ALL workings must be clearly shown.
- Mathematical tables and Electronic calculators may be used.
- ALL numerical answers must be expressed in decimal form.

Take - Atmospheric pressure – 100kpa
- Force due to gravity – 10Nkg^{-1}

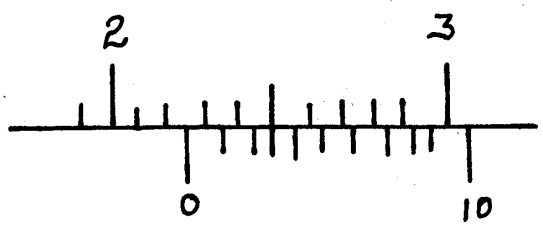
FOR EXAMINER'S USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
A	**1 – 13**	**25**	
B	**14**	**10**	
	15	**12**	
	16	**11**	
	17	**10**	
	18	**12**	
		TOTALS	

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

SECTION A (25 Marks)

1. The figure below shows a vernier calipers being used to measure the thickness of an object. It has a zero error of + 0.01cm, state the correct measurement. (2 marks)



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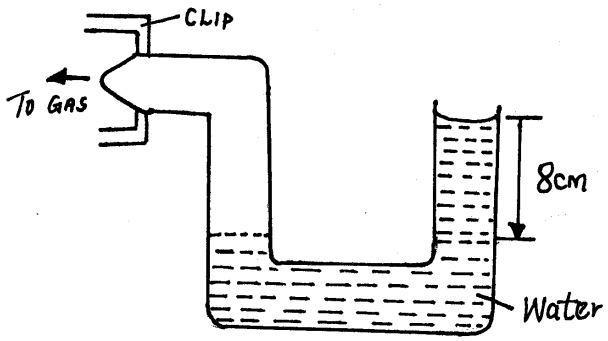
2. The figure below shows a U-tube manometer containing water. One end is connected to a gas tap.



When the clip is opened, the water level shows a difference of 8cm. Given that atmospheric pressure is 1.0×10^5 pa, determine the total pressure of the gas.

(*Take density of water = 1000kg/m^3*) (3 marks)

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3. Sketch the graph of volume against temperature of water between -10^0c to 10^0c (2 marks)

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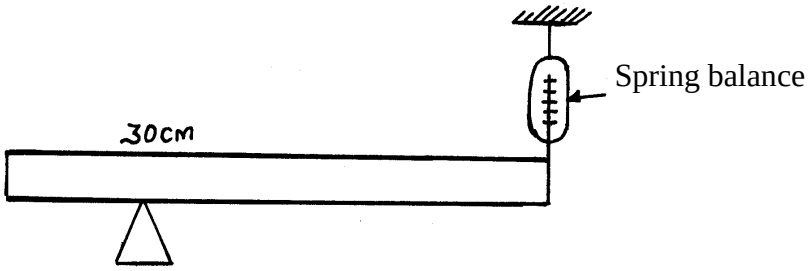
4. The figure shows a uniform metre rule which is pivoted at 30.0cm mark. The spring balance is fastened at the 100cm mark and it is at equilibrium when the spring balance records 1.2N. Determine the weight of the metre rule. (2 marks)



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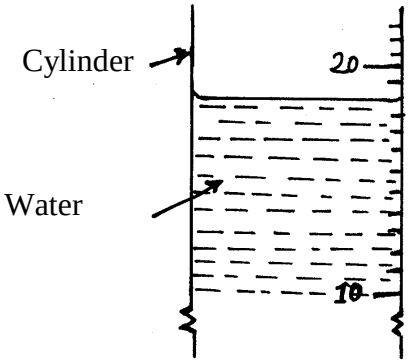
5. The figure shows part of a measuring cylinder calibrated in cm^3 containing water whose level is indicated. Some $3.0cm^3$ of water is added into the cylinder. Indicate on the diagram the new level of water. (1 mark)



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6. State the evidence to show that matter is made up of very small particles. (2 marks)

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7. State how the pressure in a moving fluid varies with the speed of the fluid. (1 mark)

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8. Name two effects of a force. (2 marks)

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9. Sketch a pulley of velocity ratio 3. (2 marks)

10. A body is projected vertically upwards from the top of a building. Assuming that it lands on the base of the building, sketch the velocity time graph for the motion. (2 marks)

11. Calculate the heat energy dissipated by a bulb rated 240w working for 10 mins (3 marks)

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12. State two factors that determine the maximum velocity with which a car negotiates a banked bend of a road. (2 marks)

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13. Distinguish between linear velocity and angular velocity. (1 mark)

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SECTION B: (55 Marks)

14. a) State the Archimedes principle (2 marks)

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b) A cylindrical metal solid of radius 3.0cm and height 7cm weighs 18.81N in air. Calculate;

(i) The density of the material making the solid. (3 marks)

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(ii) Its apparent weight, when completely immersed in a liquid of relative density 0.8 (5 marks)

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15. a) State the Hooke's law. (1 mark)

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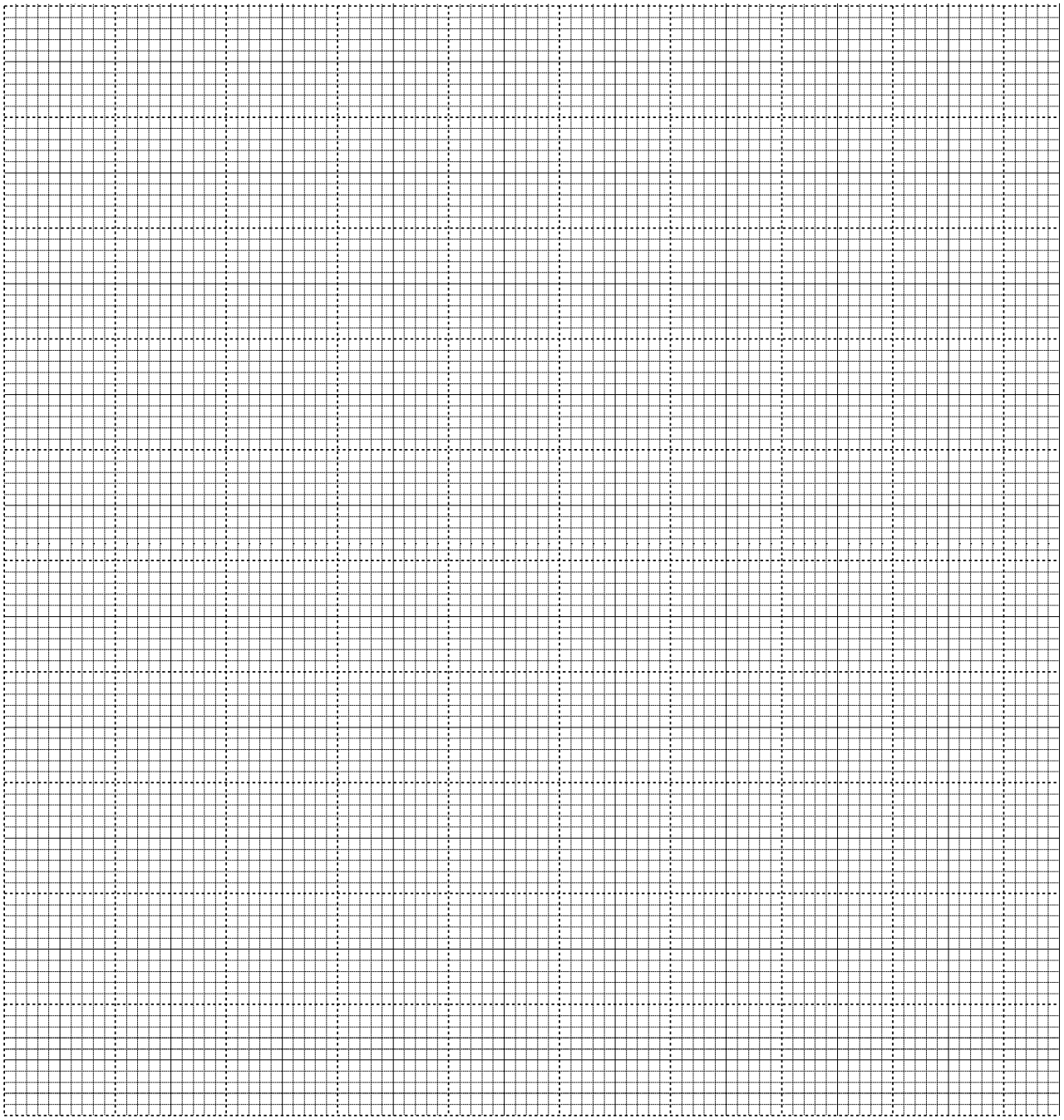
b) A student carried out an experiment to investigate the relationship between the force and extension produced on a spiral spring. He tabulated his results as shown below.

Force (N)	**0**	**0.8**	**1.5**	**3.0**	**4.5**	**6.0**	**7.5**
Extension (cm)	**0**	**0.50**	**1.0**	**2.0**	**3.0**	**4.0**	**5.0**

(i) Plot a graph of extension in cm in the y-axis against force in N (5 marks)



(ii) Determine the spring constant. (3 marks)

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(iii) What force would be required to produce an extension of 2.5cm (1 mark)

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(iv) What extension is produced by:

(i) A force of 5.5N (1 mark)

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(ii) A mass of 700g (1 mark)

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16. a) (i) Explain why a bubble of air increases in volume as it rises from the bottom of a pond to the surface. (2 marks)

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(ii) A bubble at the bottom of a pond rises to the surface of the pond. If the volume, as it just reaches the surface is double that at the bottom of the pond; estimate the depth of the pond. (Assume uniform pond temperature) (5 marks)

(Atmospheric pressure 100kpa)

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b) Using the kinetic theory of gases, explain why an "empty" aerosol if left in the sun may explode.

(4 marks)

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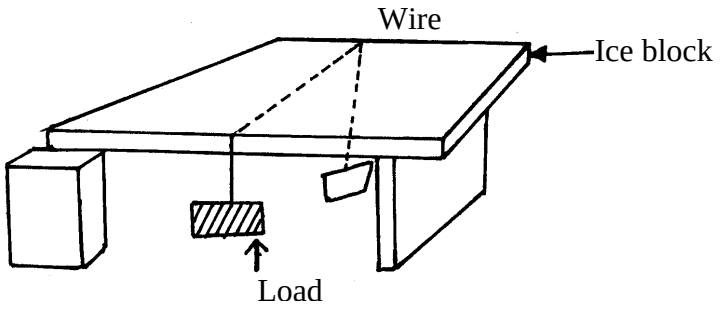
17. a) In the set-up below the wire cuts through ice block leaving the ice still as one solid.



Explain the observation. (2 marks)

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b) In an experiment to determine the specific heat capacity of liquid, a student used 2.0Kg of each of the liquids, water, glycerine and paraffin. Each of the liquids was supplied with 21600j of heat energy under the same conditions.

The table below shows temperature rise for the liquids.

Liquid	**Water**	**Glycerine**	**Paraffin**
Temp' ^{0}c	2.6	4.4.	4.9

(i) Suggest a reason for the difference in the difference in the rise of temperature.

(1 mark)

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(ii) Calculate the specific heat capacity of paraffin (3 marks)

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c) Water at 20^0c spills over a waterfall of height 10m. Calculate the rise in temperature of water at the bottom of the waterfall if 80% of potential energy at the top of waterfall is converted into heat at the bottom of the waterfall. Take specific heat capacity of water 4200j/Kg^{-1} K^{-1} (4 marks)

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18. a) Two stationary trolleys A and B are separated by a compressed spring and held together by a thread. the mass of trolley A is 2.0Kg and that of trolley B is 1.0Kg. When the thread is cut the trolleys move rapidly apart.

(i) What is the cause of movement of trolleys when the thread is cut. (2 marks)

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(ii) What is the total momentum of the trolleys just before the thread is cut. (4 marks)

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b) If trolley A moves off with a speed of 0.25m/s. calculate the speed with which trolley B moves off. (4 marks)

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c) Explain the difference between elastic and inelastic collision (2 marks)

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