NAME……………………………………………. INDEX NO……......….……………

CANDIDATE'S SIGNATURE………………………….DATE………..…………………….

232/1

MARCH-APRIL 2013

TIME: 2 HRS

MOKASA 2013

Kenya Certificate of Secondary Education

PHYSICS PAPER ONE

INSTRUCTIONS TO CANDIDATES:

➢   Write your **Name** and **Index Number** in the spaces provided **above**.
➢   **Sign** and write the **date** of examination in the spaces provided **above**
➢   .This paper consists of **two** Sections; **A** and **B**.
➢   Answer **ALL** the questions in this Booklet.
➢   Mathematical tables and scientific calculators **may be** used.
➢   Take acceleration due to gravity, g = 10m/s^2

FOR EXAMINER'S USE ONLY:

Section	Question	Maximum Score	Candidate's Score
A	1 – 9	25	
	10	09	
	11	09	
B	12	09	
	13	09	
	14	09	
	15	10	
Total Score		80	

SECTION A(25 MARKS)

1. (a) The figure below shows a burette being used to determine the volume of a spherical lead shot. If the volume of a lead shot is 1.5 cm^3, indicate on the diagram the new reading on the burette when 10 lead shots are dropped into the burette.

(b) State the advantage of using the density bottle in determining the density of a liquid. (1mk)

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2. The set up below was used by a student to investigate Brownian motion in air.

(i) State the purpose of the lens (1mk)

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(ii) State and explain the observation made by the student. (2mks)

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3. T

4. H

5.   The number of molecules in 18cm^3 of a liquid is 6.0 x 10^{23}. Given that the diameter of a molecule is equivalent to the side of a cube having the same volume as the molecule, determine the diameter of one molecule.   (3mks)

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6.   A see-saw in equilibrium has a child whose weight is 200N seated 3.00m from the pivot and a mother seated 1.00m from the pivot on the other side. Calculate the reaction force at the pivot.

   (3mks)

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7.   E

8.   T

9.   800grams of water flows through a tube of flow of uniform cross sectional area in 10 seconds. Calculate the rate at which water flows out per second given that the density of water is 1g/cm^3.   (3mks)

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SECTION B (55 MARKS)

10.   (a)   Define heat capacity of a body
(1mk)

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(b)   An electric kettle with a 2.0KW element has a heat capacity of $400Jk^{-1}$. 1.0kg of
water at 20^0c is placed in the kettle. The kettle is then switched on. It is found that 13
minutes later the mass of water is 0.5kg. Ignoring heat losses, Determine the specific latent
heat of vaporization of steam. (Take the specific heat capacity of water $= 4200JKgK^{-1}$.
(5mks)

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(c)   State three precautions to be observed when determining specific heat capacity of
a metal by electrical method.   (3mks)

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11.   (a) The set up below was used by a student to investigate a certain gas law. Use it
to answer the questions that follow.

(i)   State the two variables that the student needs to measure and record for this law to be verified.   (2mks)

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(ii)   Give the statement of the law being investigated in this set up   (1mk)

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(iii)   State one precaution to be observed while using the set up   (1mk)

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(iv)   Using the kinetic theory of matter, account for the law stated in (ii) above. (2mks)

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(b)   A gas container of volume 1.5×10^{-2} m^3 contains an ideal gas at a temperature of 27^0c and pressure 1.0×10^5 Pa. Determine the volume of the gas if it is cooled to 17^0c and its pressure raised to 1.5×10^5 Pa.   (3mks)

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12. S

13. B

14. An object is projected vertically upwards from a cliff 80m above the ground with an initial velocity of 50m/s.

(a) Sketch on the axes drawn below the velocity-time graph for the motion of the body. (1mk)

(b) (i) Determine how long it takes the object to hit the ground. (3mks)

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(c) (ii) Determine the velocity of the object as it hits the ground. (3mks)

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(d) The height of the object above the ground after the first 4 seconds. (2mks)

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15. (a)   State the law of flotation.   (1mk)

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(b)   A wooden block of volume $500cm^3$ floats in water with 0.80 of its volume submerged. Determine;

(i)   Its up thrust in water.   (2mks)

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(ii)   Minimum force needed to completely submerge it in water.   (3mks)

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(c)   Explain why wet clothes put in a drum get dried faster when the drum of the drying machine is rotated at high speed.   (2mks)

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(d)   A turn table of a record player makes 45 revolutions per minute. Calculate the angular velocity in radians per second.   (2mks)

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