NAME: ………………………………ADM NO: ……………………CLASS: ….........

CANDIDATE SIGNATURE: …………………...DATE: …………………………………

232

PHYSICS

FORM 1 (THEORY)

MARCH 2019

TIME: 2 ½ HOURS

END TERM 1 2019

KENYA CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

INSTRUCTIONS TO CANDIDATES

   a) Write your name, admission number and class in the spaces provided above.
   b) Sign and write the date of examination in the spaces provided above.
   c) This paper consists of two sections A and B.
   d) Answer all questions in section A and B in the spaces provided.
   e) All working must be clearly shown in the spaces provided.
   f) Non-programmable silent electronic calculators may be used.

Answer all the questions in the spaces provided.

1. Define the term physics   (1mk)

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2. Explain the following branches of Physics:-

(i) Mechanics   (1mk)

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(ii) Atomic Physics

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(iii) Geometric optics   (1mk)

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3. Figure 1 below shows the readings of a burette after 80 drops of a liquid were run
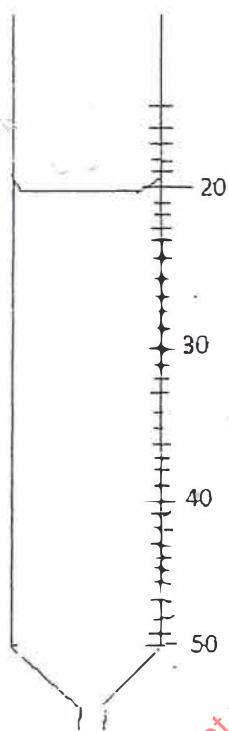
Determine the volume of one drop of the liquid.   (3mks)

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4 State two factors considered when choosing an instrument to be used to measure a given length
length   (2mks).

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Figure 2 below shows a map of a school land.
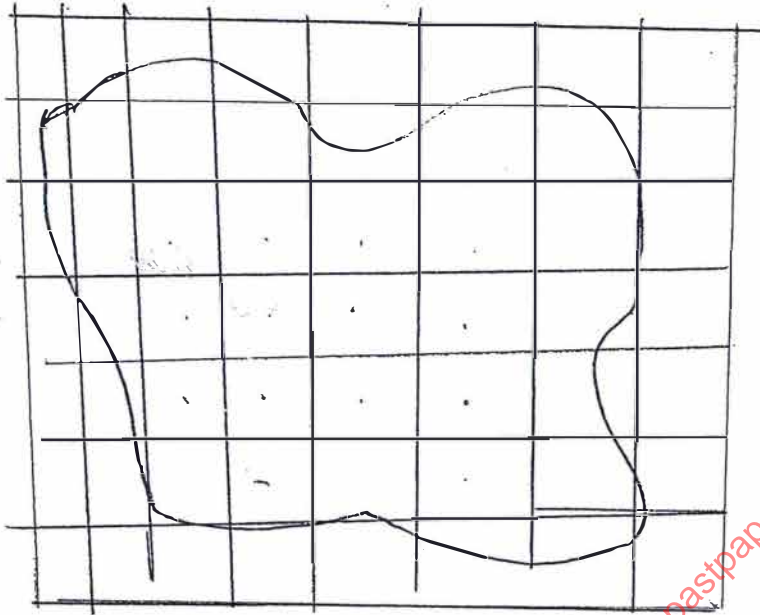
Given that the squares measure 1cm by 1cm and that the map was drawn to scale of 1: 400,000, Calculate:-
a) The area of the map in cm² (3mks)

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b) The actual area in hectares (Take 1 hectare= 10,000m² (3mks)

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6. Explain how Physics is related to the following subjects:-

a) History   (2mks)

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b) Mathematics   (1mk)

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7a) Define density and state its S1 unit   (2mks)

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b) The density of concentrated sulphuric acid is 1.8g/cm^3. Calculate the volume of 3.6Kg of
the acid.   (3mks)

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8. State any **2** career opportunities that require Physics knowledge.   (2mks)

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9(a) What is a Laboratory.   (1mk)

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b) State **two** laboratory rules that a learner should observe when using electricity in the laboratory. (2mks)

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c) State any **three** systems that must be installed in an average laboratory. (3mks)

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10a) Differentiate between basic physical quantities and derived quantities giving an example in each case. (4mks)

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b) State the quantities whose S1 units are stated below. (3mks)

(i) Kelvin

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(ii) Mole

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(iii) Candela

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11, A standard rod of length 2m produced a shadow of length 5M. Given that the length of the shadow of the flag post is 10m, estimate the height of the flag post. (3mks)

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12a) State **two** properties of a solid whose volume is determined using displacement method.

(2mks)

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b) Describe how you would determine the volume of an irregularly shaped object that is less dense than water using a measuring cylinder and a sinker. (4mks)

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13. The diagram below shows a ball placed between two set squares along a metre rule
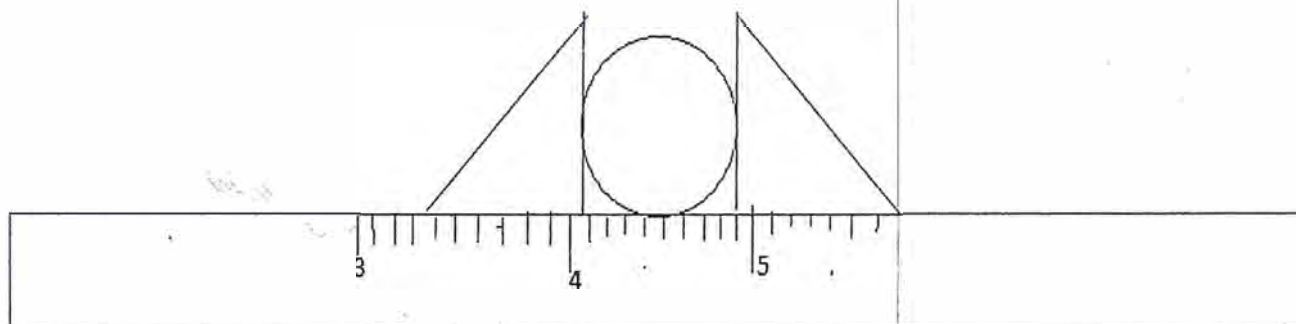
Determine the **radius** of the ball shown in the diagram above   (3mks

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14. State the first aid measure that should be taken while in the laboratory in case of;-

(i) Cuts   (1mk)

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(ii) Burns   (1mk)

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15 a) Define area and state its S1 unit   (2mks

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b) Calculate the area of **figure 3** shown in the diagram below. (3mks)

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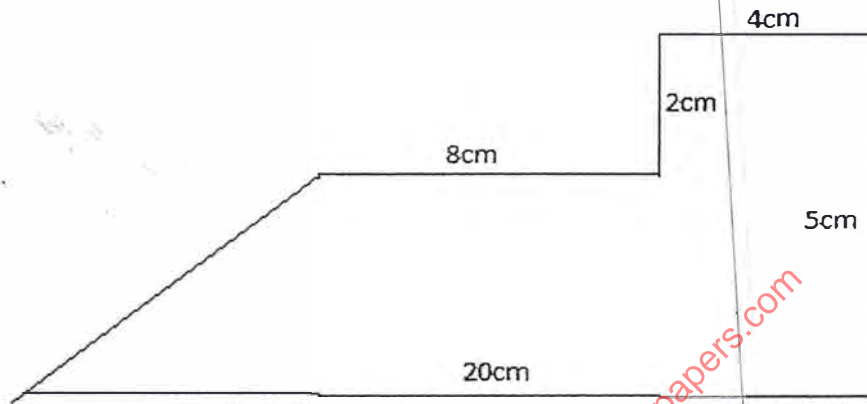
16a(Define force and state its S1 units (2mks)

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b) State the force that acts on a body which is immersed in a fluid. (1mk)

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(c) State any **two** examples of non-contact forces. (2mks)

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17a) State the type of force that can be used to:

(i) Fire a gun (1mk)

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(ii) Make water rise a narrow tube   (1mk)

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b) A body which weighs 200N in air weighs 150N when submerged in water. Calculate the up thrust acting on the body.   (3mks)

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18. State **three** precautions to be taken when using a metre rule.   (3mks)

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19a) State the S1 unit of time.   (1mk)

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b) A stopwatch started 0.50 seconds after the start button was pressed. The time recorded using the stopwatch for the bearing falling through a liquid was 2.09 seconds. Determine the time of fall.   (2mks)

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20. A thin wire was wound closely over a cylindrical container 20 times. The total length of the windings was found to be 880mm. Calculate the radius of the cylinder in metrres.   (3mks)

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21. A sphere of radius 6cm is melted and poured in a cylinder of diameter 4cm. Calculate the height of the melted metal in the cylinder. (3mks)

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22a) Define mass and state its S1 unit (2mks)

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b) State an instrument used for measuring mass (lmk)

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c) Convert 20mg to Kilograms (1mk)

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d) A butcher has a beam balance, and 1kg and 5Kg masses. How can he measure 4kg of meat at once. (2mks)

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23 a) State **two** precautions to be considered when using a density bottle. (2mks)

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b) 1000cm³ of fresh water of density 1g/cm³ are mixed with 1400cm³ of sea water of density 1.25g/cm³. Determine the density of the mixture.   (3mks)

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24. In an experiment to determine the density of sand using a density bottle, the following measurements were recorded.

Mass of empty density bottle   = 33.2g
Mass of density full of water   = 56.4g
Mass of density bottle with some sand   = 57.5g
Mass of density bottle with sand filled up with water = 72.3g

Use the above data to determine the:-
i) Mass of water that completely filled the bottle   (lmk)

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ii) Volume of water that completely filled the bottle   (lmk)

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iii) Volume of the density bottle.   (1mk)

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iv) mass of sand   (lmk)

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(v) Mass of water that filled the space above the sand.   (1mk)

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(vi) Volume of water that filled the space above the sand   (1mk)

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(vii) Volume of sand   (2mks)

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(viii) Density of the sand.   (2mks)

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