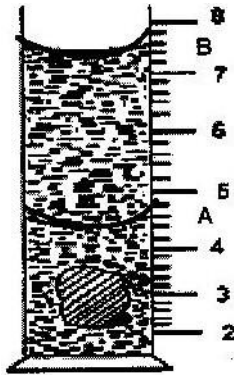


ST. MARYS' SCHOOL RUNDA.

FORM TWO PHYSICS APRIL HOLIDAY ASSIGNMENTS

1. The figure shows a measuring cylinder which contains water initially at level A. A solid mass 11g is immersed in the water, the level rises to B.



Determine the density of the solid. (Give your answer to 1 decimal point)

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2. Determine the density in kg/m^3 of a solid whose mass is 40g and whose dimensions in cm are $30 \times 4 \times 3$

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3. Figure 1 shows the reading on a burette after 55 drops of a liquid have been used.



If the initial reading was at 0cm mark, determine the volume of one drop.

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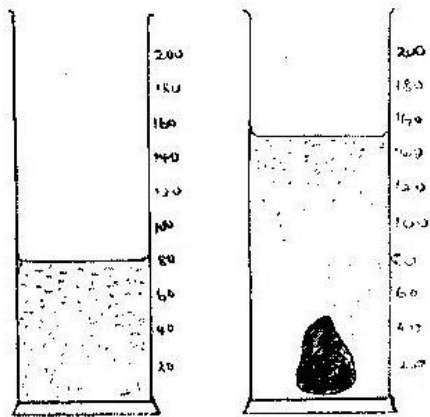
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4. Fig. 1 shows the change in volume of water in a measuring cylinder when an irregular solid is immersed in it.



Given that the mass of the solid is 567g, determine the density of the solid in gcm^{-3} .
 (Give your answer correct to 2 decimal places.)

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5. A thin wire was wound 30 times closely over a boiling tube. The total length of the windings was found to be 9.3 mm. Calculate the radius of the wire.

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6. Explain why the pressure of a gas increases when the mass of the gas in the container is increased.

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7. The reading on a mercury barometer at Mombasa is 760mm. Calculate the pressure at Mombasa (density of mercury = $1.36 \times 10^4 \text{ Kg m}^{-3}$)

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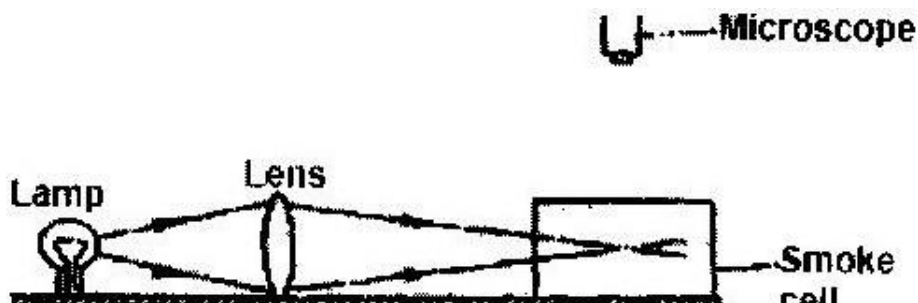
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8. Brownian motion of smoke particles can be studied by using the apparatus shown in figure 9. To observe the motion, some smoke is enclosed in the smoke cell and then observed through the microscope.



(a) Explain the role of the smoke particles, lens and microscope in the experiment.

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b) State and explain the nature of the observed motion of the smoke particles.

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c) State what will be observed about the motion of the smoke particles if the temperature surrounding the smoke cell is raised slightly.

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d) Describe ONE advantage and ONE Disadvantage of anomalous behavior of water.

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e)

(a) Draw a well labeled diagram of a vacuum flask

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(b) Stating the specific parts in the flask explain how heat loss is reduced through:

(i) Conduction

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(ii) Convection

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(iii) Radiation

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f) A current of 0.08A passes in a circuit for 2.5 minutes. How much charge passes through a point in the circuit?

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g) State two advantages of an alkaline battery over a lead acid battery.

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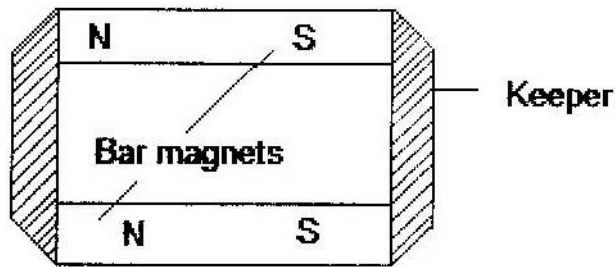
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h) Fig 12 shows how magnets are stored in pairs with keepers at the end. Explain how this method of storing helps in retaining magnetism longer.



i) Fig 14 shows a soft iron ring placed between the poles of magnet. Copy the diagram and sketch the magnetic field pattern.



