ALLIANCE HIGHSCHOOL

END OF TERM ONE FORM 2

PHYSICS TIME: 2HRS

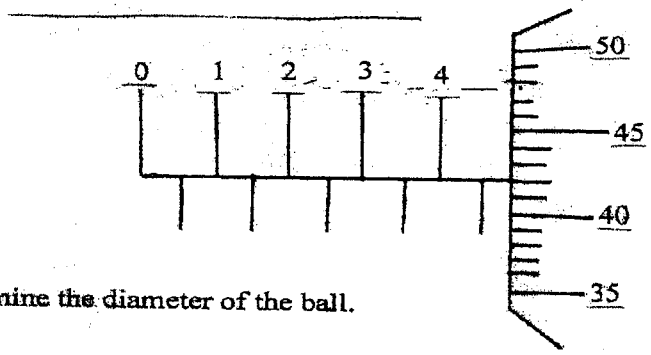
NAME: _____ **ADM NO:** _____

FORM/STREAM: _____ **DATE:** _____

INSTRUCTIONS:
ANSWER ALL QUESTIONS

SECTION A (50 MARKS)

1. The figure below shows the scale of a micrometer screw gauge when a thin metallic wire is placed between it's jaws. The micrometer has a negative zero error of 0.05mm.



Determine the diameter of the ball.

(2mks)

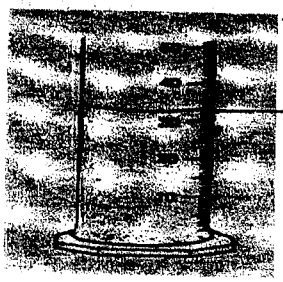
2. At sea level a lift pump can rise water to height of 10m. When the same lift pump was placed at an altitude of 2000m above the sea level it raised water up to 7.98m. Explain the difference. (2mks)

3. It is easier to detect a bad smell from a gaseous substance than a solid substance. Explain (2mks)

4. An oil drop of volume $1.6 \times 10^{-9} mm^3$ was introduced on the surface of water . A circular oil patch was formed and its diameter a measured by a metre rule was 10 cm. Determine the size of the oil molecule.(Take $\pi = 3.142$) (4mks)

5. In Brownian motion experiment using a smoke cell, the smoke particles are observed to move randomly. Explain the cause of this motion. (2mks)

6. Figure below shows a measuring cylinder partially filled with a fluid to the level shown.



$30.3cm^3$

Find the new level when a solid of mass 15.4g and density $1250kgm^{-3}$ is fully immersed into the cylinder (3mks)

7. State the principle of moments (2mks)

8. A uniform metre rule pivoted at the 60cm mark balances when a mass of 90g is hang at the 80cm mark. Calculate the weight of metre rule. (4mks)

10. Explain why water spilled on a glass surface wets the surface. (1mk)

11. A 400g of a liquid of density 1.6g/cm^3 is made from mixing liquids of density 1.2g/cm^3 and 1.8g/cm^3. Find the mass of the liquid of density 1.2g/cm^3 (4mks)

12. State two factors that affect turning effect of a force on a body (2mks)

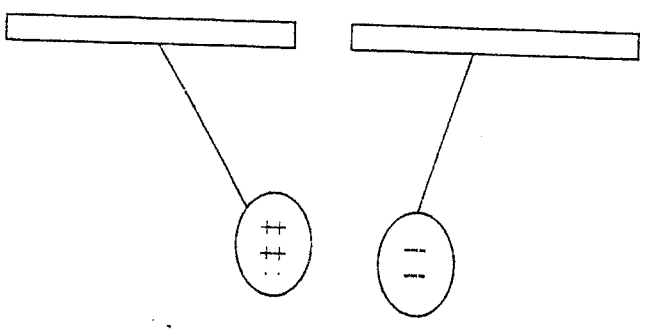
13. Using the domain theory, explain how a steel bar can be magnetized using
    i) Electrical method (2mks)

    ii) Stroking method (2mks)

14. Find the area of a square whose side is 7.56cm and give answer to 3 significant figures (3mks)

15. The barometric height in a town is 65cmHg. Given that the standard atmospheric pressure is 76cmHg and the density of mercury is 13600kg/m^3, determine the attitude of the town. (Density of air is 1.25kg/m^3) (3mks)

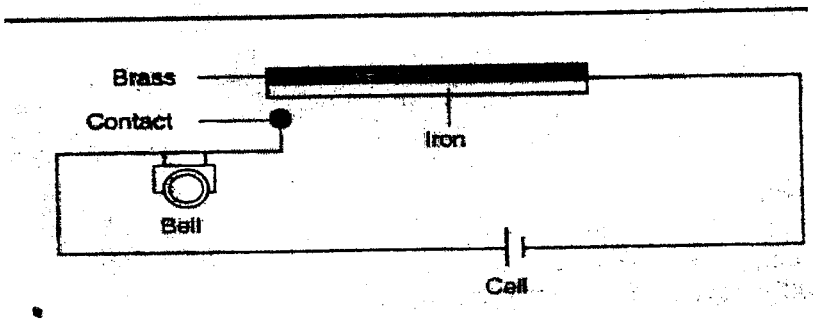
16. The diagram below shows two charged pith balls hanging from silk threads



a) Assuming that the surface of the balls are conductors, sketch a diagram to show the appearance of the pith balls after they have touched momentarily (3mks)

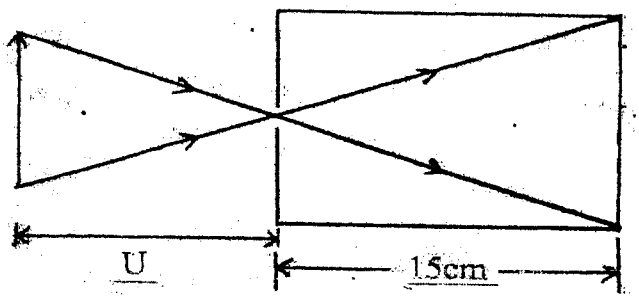
b) Explain the observation in a) above (2mks)

17. The figure below represents a simple fire alarm. Explain how it works (5mks)



SECTION B (50 MARKS)

18. a) The figure 1 shows a pin hole camera of length 15cm. It produces a magnification of 0.75 when the object is placed at a distance u cm. Determine u



(4mks)

b) explain what would happen to the image if tiny holes were bored near the first pinhole (2mks)

c) A girl stands 2.0m in front of a plane mirror. If the mirror is moved 0.6m towards the girl, what will be the distance between her and the image? (2mks)

d) State two properties of images formed in a plane mirror (2mks)

19.a) A current of 1.5A flows through a circuit for 3 minutes. Find the charge (3mks)

b) Explain why it would be better to connect domestic devices in parallel rather than series (2mks)

c) Differentiate between E.M.F and potential difference in a circuit (2mks)

d) A simple cell can be used to produce electricity. State and explain the defects of this cell (3mks)

20.a)i) a needle floats on the surface of water in a jar but when it is hated, the needle sinks. Explain and sate one other factor that would cause this effect (2mks)

ii) State two consequences brought by force in i) above (2mks)

b)Bristles of a paintbrush spread when the brush is in water and cling together when it is taken out of the water. Explain this observation (2mks)

c) A mass of 5 Kg has a weight of 25N on a certain planet, calculate the acceleration due to gravity on this planet (3mks)

d) Give a reason why the weight of a body varies from place to place (1mk)

21.a) describe a simple experiment to show how you would charge a material negatively by;

i) induction (2mks)

ii) separation (2mks)

b) Explain the use of the following parts of a gold-leaf electroscope; (1mk)

i) metal casing

(1mk)

ii) Brass cap

(1mk)

iii) Insulator