GIDEONS ELITE BOYS CENTRE OF EXCELLENCE

P.O BOX 583-20300 NYAHURURU

DECEMBER-2024 ASSIGNMENT

THIS ASSIGNMENT WILL COVER 70% OF OPENER EXAM.

ALL QUESTIONS SHOULD BE ANSWERED IN THE EXERSISE BOOK

PHYSICS FORM 1-2024 **Website: www.gideonseliteschools.sc.ke**

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1.(a) Define physics (1mk)

(b) Give three examples of natural phenomena in which physics can be used to explain their occurrence (3mks)

(c) State any three activities one is engaged in when conducting an experiment in physics (3mks)

2. (a) Name five (5) major branches of physics (5mks)

(b) Explain how physics is related to the following subjects (3mks)

History Mathematics Home science

3. (a) Define Laboratory (2mks)

(b) List down any three basic requirements for a working school laboratory (3mks)

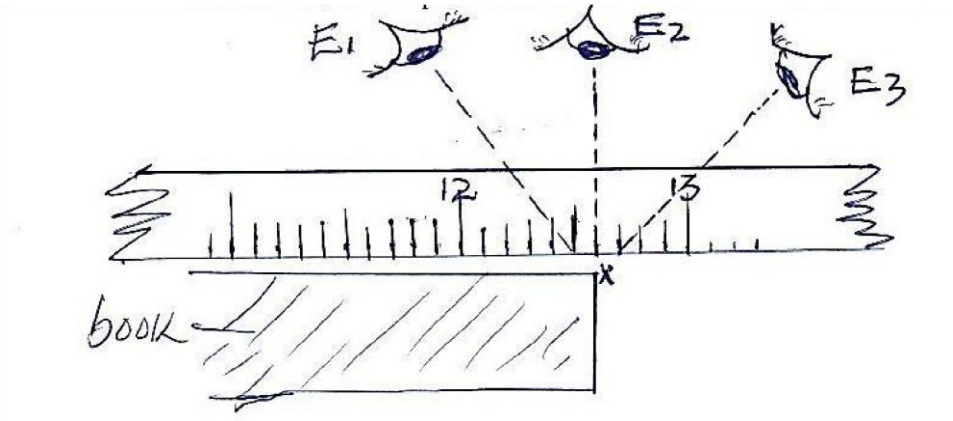
(c.) Explain the first aid measures to be undertaken if the following calamities / accidents befall a student.

a) Cuts (1mk) b) Eye damage (1mk) c) Electric shock (1mk)

4. (a) The following table shows some basic physical quantities, Fill in the blank spaces (4mks)

Basic physical quantities	SI Unit	Symbol of unit
Length		
		Kg
	Seconds	
	Kelvin	

(b) A form one student used a meter rule to measure the width of a textbook as Shown below. Point x is the end point of the text book from where the student read the width.



i. From which position did he read the correct width of the text book? (1mk)

ii. State the correct width he read (1mk) iii. Which is the name of the error he would engage in if he used any of the other two positions (1mk)

(c) A form one student was asked to estimate the circumference of a cylinder using, a thin thread and a meter rule. Describe using a diagram how he measured and estimated the circumference (6mks)

5. (a) Define density and state it's SI units (2mks)

(b) A block of glass of mass 240g is 5cm long, 2 cm thick and 8 cm high. Determine:

a. The volume of the block (2mks)

b. The density of the glass block in kg/m^3 (3mks)

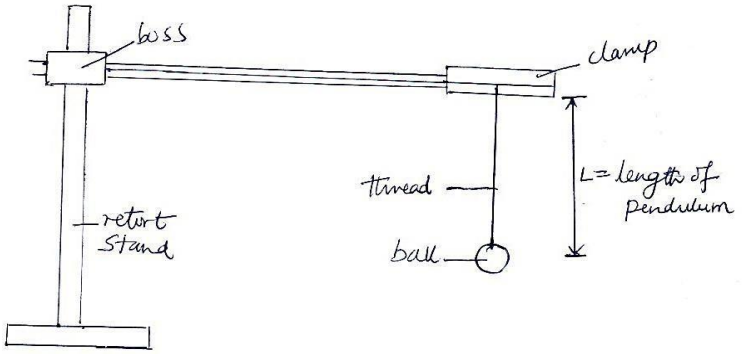
6. The mass of an empty density bottle is 20g. It's mass when filled with water is 40.0g and 50.0g when filled with liquid X. Calculate

i. Volume of water (density of water is $1g/cm^3$) 2mk).

ii. Density of liquid X (3mks).

7. (a) Define Time, stating its SI unit. (2mks)

(b) A form one student had the following set up to do an experiment to determine the time taken to complete one oscillation by a pendulum ball. She also had a Stopwatch.



She timed 3 times for the time taken to complete 10 oscillations and recorded in the table below.

Trial	1	2	3
Time taken for 10 oscillations (sec)	5.5	5.6	5.7

Calculate

a. Average time for 10 oscillations (1mk)

b. Time taken to complete one oscillation (2mks)

8. (a) Define force, stating its SI units (2mks)

(b) Draw and name the instrument used to measure a force (3mks)

(c) State three (3) effects of a force on a body. (3mks)

9. (a) Define the following types of forces

a) Cohesion (1mk) b) Adhesion (1mk)

(b) List down three differences between Mass and weight in the table below (3mks)

10. The weight of an object on the Earth's surface is 400N.
    a. Calculate it's mass (g=10N/kg) (2mk)
    b. The same object weighed 68N on the surface of the moon. Calculate gravitational field strength of the moon

    (2mks)

11. Show diagrammatically how forces of 13N and 8N can be combined to give a resultant force of
    a. 21N (1mk)
    b. 5N (1mk)
12. State the reason why an object on earth has a higher weight than on the moon. (1mk)
13. Figure 1 shows the position of a student eye while illustrate the length of a wooden block using a theme rule.

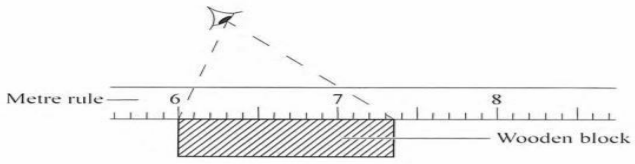


Figure 1

Determine the length of the block as viewed by the student. (1 mark)

14. Figure 2 shows an instrument used to measure atmospheric pressure.

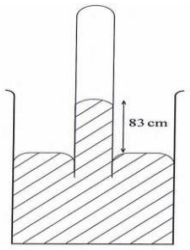


Figure 2

State with a reason the modification that would be required in a similar set up if mercury were to be replaced with water. (2 marks)

15. It is observed that a drop of milk carefully put into a cup of water tums the water white after some time. State the reason for this observation. (1 mark)

16. State two ways in which a mercury based thermometer can be modified to read very small temperature changes. (2 marks)

17. (a) State Pascal's principle of transmission of pressure in liquids. (2marks)
    b) State one application of the siphon. (1 mark)

18. State three ways in which loss of heat by conduction is minimized in a vacuum flask. (3 marks)

19. State what mechanics as a branch of physics deals with. (1 mark)

20. State why it is easier to separate water into drops than to separate a solid into smaller pieces. (3marks)

21. A solid weigh 16.5N on the surface of the moon. The force of gravity on the moon is 1.7N/Kg. Determine the mass of the solid. (3 marks)

22. A drop of blue ink is introduced at the bottom of a beaker containing water. It is observed that after some time, all the water in the beaker turns blue. Name the process that takes place. (1 mark)

23. Some water was put in a burette so that the level read 35.6cm³. 50 drops were then allowed to fall from the burette. The average volume of one drop was 0.14cm³. What is the new reading of the burette? (3marks)

24. Define the following terms (3marks)

a) A ***hypothesis*** ***b)*** A ***law or principle*** c) A ***theorem***

27. a) what is force (1mk)

(b) Explain three types of forces (6mks)

28. (a) What is surface tension (1mks)

(b)Explain two factors that affect surface tension (4mks)

29. Explain each of the following behaviors of molecules

(a) Water wets clean surface of glass but not waxed ones (2mk)

(b) A steel needle is placed on the surface of water carefully doesn't sink (2mks)

(c) Bristles of a paint brush spread when the brush is in water but cling together when it's taken out (2mks)

30. A brick measuring 20cm by 10 cm by 6 cm has a mass of 1000grammes. Determine the

a) Greatest pressure it can exert on the flat surface (3) mks

b) The minimum pressure it can exert on a flat surface 3mks

31. . Calculate the pressure due to water experienced by a diver working 15 m below the surface of the sea. Take g=10n/kg, and density of water as 1.03g/cm^3(4mks)

32. The pressure at the base of the mountain is 75.0 cm 0f mercury and that at the top is 60.0 cm. given that the density of air is 1.25 kg/M^3 and the density of mercury is 13600 kg/m^3 calculate the height of the mountain 5mks

33. (a)What is Brownian motion? 1mk

(b) by drawing explain how the particles in all the states of matter appear and behave 6mks

34. The water level in a burette is 30cm^3, 55 drops of water fall from the burette and average volume of one drop is 0.12cm^3. What is the final water level in the burette? (3mks)

35. The mass of 20cm^3 of wood was found to be 0.4kg. Calculate the density of wood

a) In kg/m^3 (2mks)

b) In g/cm^3 (2mks)