

FORM ONE PHYSICS - TERM 1 2023

MARKING SCHEME

1. Explain briefly the first aid measure that should be taken in case of (2 marks)

Cut dress the cut to stop bleeding

Poisoning..... medical assistance should be sought

2. Define physics (2 marks)

Physics is a natural science that deals with a study of matter in relation & energy or study of matter and natural forces.

3. Any five- mechanics, properties of matter, geometric optics, physical optics, sound, heat, static electricity, magnetism, current electricity, electronics, electromagnetic induction, atomic nuclear physics.

4. engineering and technology (laboratory technology, mapping and surveying, civil, mechanical, instrumentation technology, meteorology, electronics and telecommunication, architecture, aeronautics, teaching, medical sports optician).

5.

(i) Never enter the laboratory when the teacher is not in

(ii) Do only what the teacher has instructed you to do

(iii) Do not run, play or throw things

(iv) Never chew, eat or drink in the laboratory

(v) Never heat glass bottle containers with stoppers on.

(vi) Ensure sockets switches are off before plugging in any electric device.

(vii) Never handle electrical apparatus with wet hands

(viii) Avoid open circuits

(ix) Wear protective goggles where there is a danger of hot or caustic materials being splashed into the

(x) Tidy your work place after the experiment is over

Xiii) Inform the teacher at once about any accidents.

6. Gloves, forceps, safety pins, mild antiseptic solution sterilized cotton wool and gauze. An assortment of bandages, pair of blunt ended scissors (Any 4)

7. A biologist will assist a physicist in the awareness of

- Balanced diet and nutritive diet.
- Some simple exercises to keep fit.
- Effects of excessive drinking and drug abuse.

A physicist will help a biologist to develop a microscope and a hand lens used for magnification.

8. - Change of state

- Change of shapes
- Turning effects

9. Tie a thread on the cylinder. Count the number of turns, measure the length of the thread using the metre rule.

Divide the length by the number of turns.

10. volume of sphere $= \frac{4}{3}\pi r^3 = \frac{2}{3} \times \frac{22}{7} \times \frac{3}{2} \times \frac{3}{2} \times \frac{3}{2} \text{cm}^3 = 14.1428 \text{cm}^3$ area of the wire

$$= \pi r^2 = \frac{22}{7} \times \frac{0.02}{2} \times 0.02 / 2 \text{cm}^3 = 0.00031428$$

$$\frac{14.1428}{0.00031428} = 4500.6363 \text{cm} = 45 \text{m}$$

11. MASS

Quantity of matter

SI unit is kg

Constant everywhere

Scalar quantity

Measured by a beam balance

WEIGHT

pull of gravity

SI unit is Newton

change from place to place

vector quantity

measured by a spring balance.

12. $\frac{0.045}{25 \times 10^{-6}} = 1800 \text{kg/m}^3$

13. $300 + 1000 = 400\text{cm}^3$

$300 \times 1\text{g/cm}^3 = 300\text{g}$

$$100 \times 1.03 = \frac{103\text{g}}{403\text{g}} = \frac{403}{400} = \frac{1.0075\text{g/cm}^3}{1.0075\text{g/cm}^3} = \frac{100.75\text{kg/cm}^3}{100.75\text{kg/cm}^3}$$

14. Partially fill the measuring cylinder with water. Record the initial column of water as v_1 . Immerse the object into the water record the new reading of the water as v_2 . The volume of the object $= v_2 - v_1$.

15. Fundamental quantities. Cannot be expressed in terms of other quantities

Derived –expressed in terms of other quantities e.g. Area, volume, and density.

16. Force is pull or a push –SI unit = Newton.

17. –gravitational, friction, magnetic, electrostatic up thrust, action and reaction, tension cohesive and adhesive, surface tension.

18. Scalar –magnitude only-distance, mass, density, area, volume.

Vector –Both magnitude and directions force, weight, acceleration.

19. Spreading of ink over a blotting paper.

Kerosene rises up the wick of a lamp.

Rise of saps from the soil up in plants.

Towels used for drying.

20. Temperature

Impurities

21. $W = Mg$

$70 \times 10 = 700\text{n}$

b) $W = Mg$

$70 \times 1.7 = 119\text{ N}$

22.

In water Adhesive force are greater than the cohesive in mercury. The cohesive forces are greater than adhesive

Fundamental quality	Si units	Symbol
Length	Meter	M
Mass	Kilograms	Kg
Time	Second	S
Current	Ampere	A
Temperature	Kelvin	K

Cohesive force – force of attraction between molecules of the same kind

Adhesive force- force of attraction between molecules of different kind

25) $400\text{N} + 20 = 420\text{N}$

26) Because of surface Tension – The soap solution breaks the surface tension

27) The surface tension is broken and therefore the water penetrates through.

(b) This is because of capillary action. The water rises up so as more molecules can be in contact with glass molecules while the mercury drops in the tube so as more mercury molecule can be in touch with each other.

$V \times \rho = m.$

$100 \times 10 \times 1 = 100\text{g} - \text{water}$

100g

100g

(b) Volume of metal

$V = m/\rho = 20/8 = 2.5\text{cm}^3$

c) $2.5 \times \text{g/cm}^3 = 2.5 \text{g}$

$1100 + 20 = 1300 - 2.5 = 1297.5 \text{g}$.