

**PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
UKEREWE DISTRICT COUNCIL**



**FORM ONE EXAMINATION
PHYSICS MARKING GUIDE-2025**

1.

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
C	D	C	B	D	D	D	C	A	A

2.

(i)	(ii)	(iii)	(iv)	(v)
B	A	D	C	F

3. (a) Force is a pull or push of an object.

The SI unit of force is Newton(N) or Kgm/s^2

(b) (i) Force can change the direction of a body

(ii) Force can change shape and size of the body

(iii) Force can cause a stationary body to move.

(iv) Force can cause a moving body to stop.

4. (a) (i) Physics is the study of matter in relation to energy and their interaction.

OR Is the branch of science that deals with the study of matter, energy and their interaction.

(ii) Matter is anything that has mass/weight and occupies space.

(iii) Energy is the ability/capacity of doing work.

(b) Scientific procedure:

(i) Problem identification

(ii) Hypothesis formulation

(iii) Experimentation

(iv) Data collection and analysis

(v) Data presentation and interpretation

(vi) Drawing conclusion

(vii) Reporting the results.

5. (a) (i) Archimedes principle state that: When a body is totally or partially immersed in fluid it experienced an up-thrust which is equal to the weight of fluid displaced.

(ii) Law of floatation: A floating body displaces its own weight of the fluid in which it floats.

(b) Data given:

Initial volume (V_1) = 60cm^3

Final volume (V_2) = 90cm^3

- (i) The volume of stone = Final volume – Initial volume
 $90\text{cm}^3 - 60\text{cm}^3$

The volume of the stone is 30cm^3

- (ii) Density of the stone = $\frac{\text{mass}}{\text{volume}}$ but mass is 15g
 $\frac{15\text{g}}{30\text{cm}^3}$

Density of the stone is 0.5g/cm^3

6. (a)(i) The weight of the body in liquid is less than the weight in air due to the existence of an up-thrust force or buoyant force on the body when totally or partially immersed in liquid.

(ii) Coin sink in water because it density is greater than the density of water while a ship float because it have hallow space filled with air which make the average density of ship to be less than the density of water.

(b)(i) DATA:

Weight = 30N

$G = 10\text{N/kg}$

Mass = ?

From $W = mg$

$30\text{N} = m \times 10\text{N/kg}$

Mass = 3kg

The mass of an object is 3kg

(ii) -

mass	weight
- Quantity of matter it contain - Measured by beam balance - SI unit is kilogram - It is fundamental quantity - It is constant/ does not vary from one position to another - It is scalar quantity i.e has magnitude only no direction.	- Force of gravity of an object - It is measured by spring balance - SI unit is newton - It is derived quantity - It is not constant/ varies from one position to another. - It is vector quantity i.e has both magnitude and direction

7. (a) (i) Fundamental quantities: Are those which cannot be obtained from other quantities e.g mass, time, length, electric current, temperature, luminous

intensity, amount of substance.

- (ii) Derived quantities: Are those which can be obtained from other quantities through multiplication and division e.g speed, velocity, area, volume, density, relative density, force, weight e.t.c

- (b) (i) sleeve scale reading = 9.5mm

Thimble scale reading = $31 \times 0.01\text{mm} = 0.31\text{mm}$

Reading = sleeve scale + thimble scale
= $9.5\text{mm} + 0.31\text{mm}$

The diameter of an object is 9.81mm

- (ii) main scale reading = 10cm

Vernier scale reading = $1 \times 0.01\text{cm} = 0.01\text{cm}$

Total reading = main scale + Vernier scale
= $10\text{cm} + 0.01\text{cm} = 10.01\text{cm}$

The diameter is 10.01cm

8. (a) applications of density and relative density in real life:

- (i) It is used to design of various structures like ship, planes etc
- (ii) Used to determine density of unknown substance using known density of another
- (iii) Used to select building materials
- (iv) Used to design equipment used in swimming and diving
- (v) Used in identification of gemstones such as gold and diamonds
- (vi) Used by geologists and mineralogists to determine the mineral content of rocks or other sample.

- (b)(i) Data

Mass of an empty tin (M_0) = 50g

Mass of tin with paint (M_1) = 70g

Volume of tin = 50cm^3

From density of liquid = $\frac{M_1 - M_0}{V}$

$$\text{Density} = \frac{70\text{g} - 50\text{g}}{50\text{cm}^3}$$

Density of paint is 0.4g/cm^3

(iii) Relative density = $\frac{\text{density of paint}}{\text{density of water}}$
= $\frac{0.4}{0.1} = 0.4$

The relative density is 0.4

9. (a) (i) In communication: different devices like phone, radios, Television are made and they operate by the principle of physics
- (ii) In transport: Different devices that are used in transportation like ship, train, airplane, boat, cars they are made and operate by the principles and laws of physics.

- (b) DATA

Weight in air = 8N

Weight in water = 5N

Density of water = 1g/cm^3

(i) Up-thrust = weight in air – weight in water
= $8\text{N} - 5\text{N}$

Up-thrust is 3N

(ii) Volume of the body

From up-thrust = density of liquid volume gravity

$$3\text{N} = 1\text{g/cm}^3 \times 0.01\text{N/g}$$

$$3\text{N} = 0.01\text{N/cm}^3 \times V$$

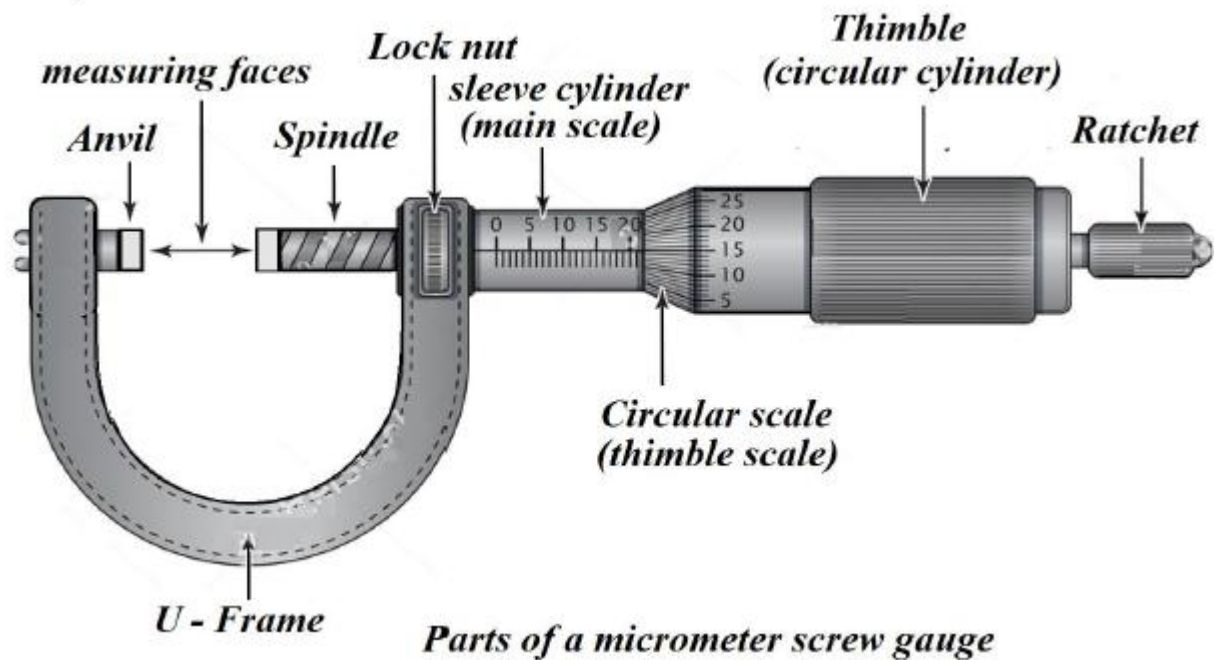
Volume of the body is 300cm^3

10.

(a) Four steps of using Vernier caliper:

- (i) Place an object between the jaws.
- (ii) Take reading to the main scale before the Vernier scale.
- (iii) Take reading to the Vernier scale at the coincidence point and then multiply by an accuracy of about 0.01cm or 0.1mm depending to the reading of main scale.
- (iv) Find the total reading by summing the main scale reading and Vernier scale reading.

(b)



(c) Three reasons for errors to occur:

- (i) Fault during manufacture.
- (ii) Damage during use
- (iii) poor storage
- (iv) Human factors

