

MWALIMU OGEKE EXAMS
PHYSICS EXAM MARKING SCHEME
FORM ONE
END OF TERM 3-2022

1. a) Mass is the measure of the quantity of matter in a substance

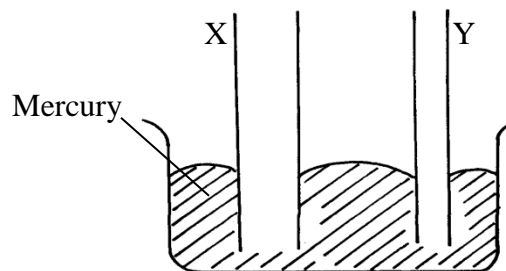
SI units- kilograms (kg)

b) Beam balance

2.

Basic physical quantity	Derived physical quantity
- quantities that cannot be obtained from any other physical quantity e.g. length, mass, time, electric current e.t.c	- quantities that can be obtained by multiplication or division of basic physical quantities e.g. area, volume and density

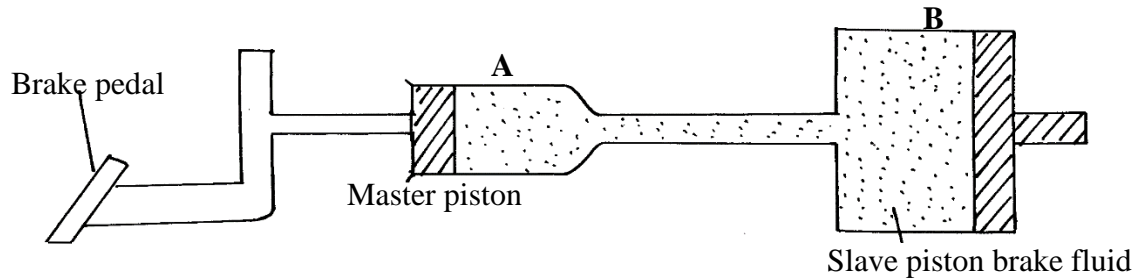
3. Indicate on the diagram below, the level of mercury in the tubes **X** and **Y** (2mks)



4. Define **pressure** and give its S.I nits. (2mks)

> **Force acting normally per unit area : Pascal/ N/M^2**

- a) The diagram below represents a motor car hydraulic braking system;



- i. State **two** properties of the liquid used as a brake fluid (2mks)
- >Should not corrode the parts of the brake system
 - >Have low freezing point and high boiling point
 - >Be incompressible
- ii. Given that in the diagram (b) above the master piston has an area of 15cm^2 and the slave Piston has an area of 50cm^2 a force of 100N is applied on the master piston. Find the force Used to stop the car. (3mks)

$$F_1/A_1 = F_2/A_2$$

$$F_2 = 50\text{cm} \times 100\text{N}/15\text{cm}$$

$$F_2 = 333.33\text{N}$$

- b) Compare the values of pressure in the two pistons above and give a reason for your answer.
The pressure is the same because pressure applied to one part of a liquid is transmitted equally to all other parts of the enclosed liquid.
- (2mks)
- c) Give a reason why gas is not suitable for use in place of the brake fluid. (1mk)
- .Its compressible**
- d) $X\text{cm}^3$ of substance A which has density of $800\text{kg}/\text{m}^3$ is mixed with 100cm^3 of water with a density of $1000\text{kg}/\text{m}^3$. The density of the mixture is $960\text{kg}/\text{m}^3$.

Determine the value of X (3mks)

$$\text{Density} = \text{mass}/\text{volume}$$

$$0.96 = 100 + 0.8x / 100 + x$$

$$96 + 0.96x = 100 + 0.8x$$

$$(0.96 - 0.8)x = 100 - 96$$

$$0.16x = 4$$

$$X = 4 / 0.16$$

$$= 25\text{cm}^3$$

5. (a) Types of forces

Tension

Magnetic

Cohesive and adhesive

Gravitational force

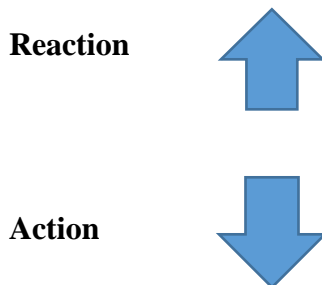
(b) – can make objects change direction of motion

-Can make a stationary object start moving or increase the speed of moving object/cause acceleration

-Slows down or stop a moving object

-Distort (change shape) of an object

(c) Name and show forces acting on a box placed on a table. (2mks)



6. (i) To prevent the liquid which has gone past from returning back into the bulb and therefore allows time for the temperature to be ready.

(ii) The bulb is thin for effective heat transmission between the liquid and the body whose temperature is to be taken.

(iii) The tube is thin for high degree of accuracy or high degree of sensitivity for small changes in temperature to be shown.

7. (a) Refers to the change in the size of the image relative to that of the object.

$M = \frac{\text{height of image } h_i}{\text{Height of object } h_o}$

(b) $\frac{\text{Height of image } h_i}{\text{Height of object } h_o} = \frac{\text{distance of image from pinhole } (v)}{\text{distance of object from pinhole } (u)}$

$\underline{3\text{cm}} = \underline{15\text{cm}}$

$$h_0 = 900 \text{ cm}$$

$$h_0 = \frac{900 \times 3}{15} = 180 \text{ cm}$$

8. a) Natural : Involves change in density of the fluid with temperature while forced is mixing of hot and cold parts of the fluid through some external stirring, like a fan or pump.

b) > length of the conductor

> The cross- section area of a conductor

> The nature of the conductor

> The temperature difference between the ends of the conductor

$$9. \frac{270}{h} = \frac{63}{100}$$

$$h = \frac{270}{63} \times 100$$

$$h = 428.57 \text{ cm}$$

$$10. 2\pi r = \frac{352}{40} = 8.8$$

$$r = 8.8 \times \frac{7}{22 \times 2}$$

$$r = 1.4 \text{ cm}$$

$$11. (a) 850000/1000 = 850 \text{ m}$$

$$(b) 500 \times 10^{-6} = 0.0005 \text{ m}^2$$

$$12. \text{Complete squares} = 34$$

$$\text{Incomplete squares} = 22$$

$$\text{Area} = 2 \left(34 + \frac{1}{2} (22) \right)$$

$$= 90 \text{ cm}^2$$

13. a) Luminous sources are objects that produces their own light while non-luminous do not produce their own light.

Luminous : Sun, stars, glow worms etc

Non- luminous : walls, clothes, wall charts, people etc

b.) i) incident ray; Is the ray that travels from the source to the reflecting surface.

ii) Normal ;Is the line drawn perpendicularly at the point where the incident ray strikes the reflecting surface

iii) Reflected ray ; Is the ray that bounces from the reflecting surface.

14. $Q=It$

But, $I=3A$ and $Q = 30Ah$

$$30= 3xt$$

$$T= 30/3$$

$$=10\text{hours}$$

15. a) They require very little attention to maintain

b) They are lighter (more portable) than the lead –acid accumulators

c) Large currents can be drawn from them

d) They can be kept in a discharged condition for a very long time before the cells are ruined.

16. –Detect the presence of charge on a body

-Test the sign of charge on a charged body

- To test the Quantity of charge on a charged body

- Test for insulation properties of a material.