

PHYSICS FORM TWO MID TERM 1 2023 MARKING SCHEME

1. (a) Reading = $6.9 + (0.01 \times 4)$
 $= 6.94 \text{ cm}$

Diameter = $6.94 - 0.22$
 $= 6.72 \text{ cm}$

- (b) - it can measure internal dimension
 - it can measure depth of blind holes

2. Pressure exerted at one point of a liquid is transmitted equally to all other parts of enclosed liquid.

3. (a) single stroke method

- (b) X- south
 Y - North

4. (i) Electrical method

- (ii) A – North
 B - South

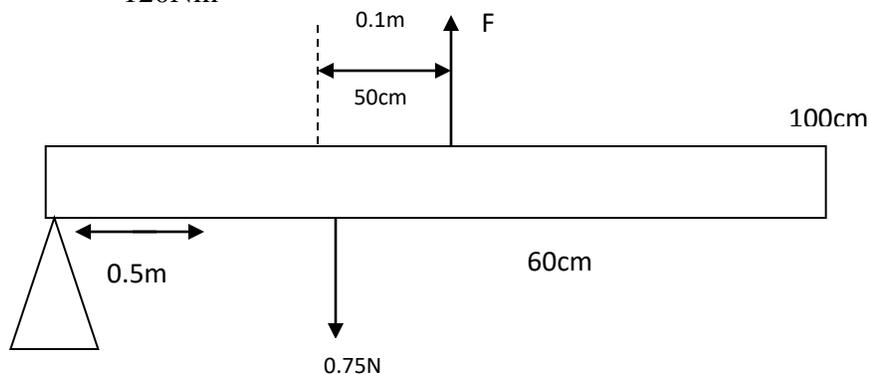
2. $65,000\text{g} \times 1000$ }
 $65,00,000\text{mg}$ } ✓ Either step
 $6.5 \times 10^7\text{mg}$ ✓ (A.O Accept without units)

7 Density = $\frac{120}{20 \times 2}$
 $= 3 \text{ g/cm}^3$

- 8 (a) (i) The moment of a force is defined as the product of the force (F) and the perpendicular distance (d) between the point of support and the line of action of the force.
 (ii) Moment = Force x distance

$$= 10 \times 10 \times 1.2$$

$$= 120\text{Nm}$$



(b) Clockwise moments = Anticlockwise moment

$$0.75\text{N} \times 0.5\text{m} = F \times 0.1$$

$$0.375 = 0.1F$$

$$F = \frac{0.375}{0.1} = 3.75\text{N}$$

9 (i) B

(ii) A

10 (a) Let the mark be x

$$0.2(x - 20) + 1(x - 50) = 1.4(90 - x)$$

$$0.2x - 4 + x - 50 = 126 - 1.4x$$

$$0.2x + x + 1.4 = 126 + 4 + 50$$

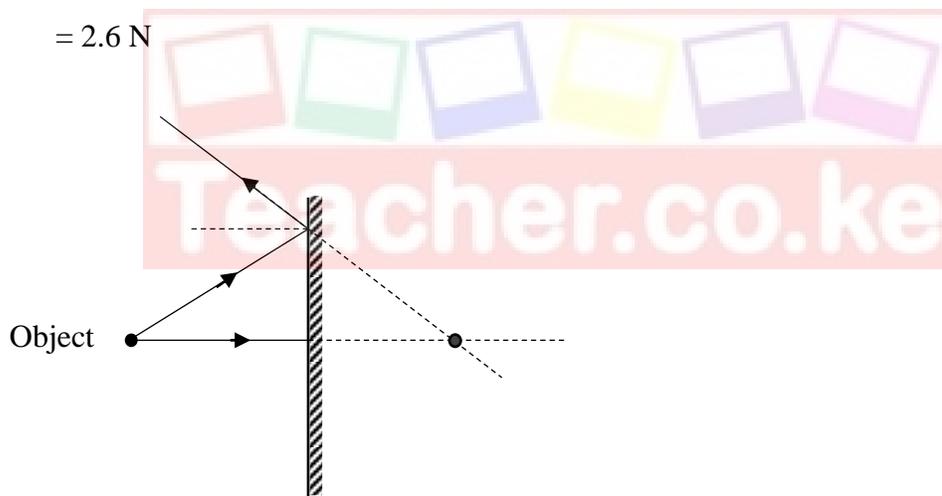
$$2.6x = 180$$

$$x = 69.23 \text{ cm mark}$$

(b) $T = 0.2 + 1 + 1.4$

$$= 2.6 \text{ N}$$

11



12 (a) Neutral point is a point within the magnetic field where the effect of magnetism cannot be felt.

(b) A – North

B – South

C – South

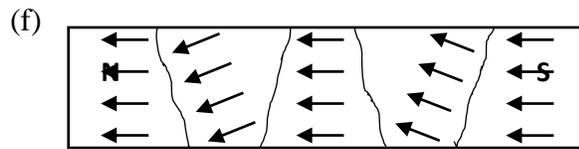
D – North

(c) C is stronger

(d) The magnetic field lines in C are closer than B

(e) - Stroking method

- Electrical method



(g) (i) Steel is a hard magnetic material while iron is a soft magnetic material

- (ii) a. Iron
b. Steel

13 (a) (i) clean water has got a stronger surface tension

(ii) to provide enough area for maximum spreading of the oil.

(iii) If it had not settled the drop would spread by force of gravity, other forces will be a factor.

(iv) to make the boundary between the oil and water visible. - for clarity.

(b) (i) Volume = $\frac{4}{3} \times \frac{22}{7} \times \left(\frac{0.35}{2}\right)^3$

= 0.0225 mm^3

(ii) Area = $\frac{22}{7} \times \left(\frac{14}{2}\right)^2 \times 100 \text{ mm}^2$
= 154 cm^2

(iii) Diameter = $\frac{0.0225 \text{ mm}^3}{154}$

= $1.54 \times 10^{-4} \text{ mm}$

= $1.54 \times 10^{-7} \text{ m}$

(iv) Volume = $\frac{4}{3} \times \frac{22}{7} \times \left(\frac{0.000154}{2}\right)^3$

= $1.77 \times 10^{-12} \text{ mm}^3$

(v) No. of molecules = $\frac{0.0225}{1.77 \times 10^{-12}}$

= $1.27 \times 10^{10} \text{ molecules}$