

**THE UNITED REPUBLIC OF TANZANIA**  
**NYAMAGANA DISTRICT COUNCIL**  
**FORM TWO MOCK ASSESSMENT**  
**PHYSICS**  
**MARKING SCHEME**

**SECTION A (30 MARKS)**

**1. Answers**

|   |    |     |    |   |    |     |      |    |   |
|---|----|-----|----|---|----|-----|------|----|---|
| i | ii | iii | iv | v | vi | vii | viii | ix | x |
| A | B  | B   | C  | B | D  | D   | B    | C  | A |

|    |     |      |     |    |     |      |       |     |    |
|----|-----|------|-----|----|-----|------|-------|-----|----|
| xi | xii | xiii | xiv | xv | xvi | xvii | xviii | xix | xx |
| C  | A   | A    | D   | C  | C   | B    | B     | A   | B  |

@ 01 MARKS ..... **20 MARKS**

**2. ANSWERS**

|        |   |    |     |    |   |
|--------|---|----|-----|----|---|
| LIST A | i | ii | iii | iv | v |
| LIST B | E | G  | C   | F  | D |

@ 01 MARK ..... **05 MARKS**

**3. ANSWERS**

- i. VOLUME
- ii. UNIFORM VELOCITY
- iii. TEMPERATURE
- iv. MOMENT OF A FORCE
- v. ANGLE OF DECLINATION

@ 01 MARK ..... **05 MARKS**

**4. ANSWERS**

- (a) (i) Diffusion is the movement of particles from a region of high concentration to the region of low concentration.
- (ii) Osmosis is the movement of solvent from a region of low concentration to the region of high concentration through semi-permeable membrane.
- (iii) Surface tension is the ability of liquid surface to behave like a fully stretched elastic skin.

@ 02 marks ..... **06**

**marks.**

- (b) **Hot soup has small surface tension that why it spread on large surface of tongue and become tastier than cold one which is the inverse of the hot. ..02 marks.**
- (c) **Kinetic theory of matter, It states that: “All matter is made up of very small particles that are in constant motion” ..02 marks.**

## 5. ANSWERS

- (a) (i) **Repulsion**  
 (ii) **Neutral point**  
 (iii) **Is the point where magnetic field is zero. @ 02 marks ... 06 marks**

(b) Answer

| Magnetization                           | Demagnetization                                         |
|-----------------------------------------|---------------------------------------------------------|
| <b>Is the process of making magnet.</b> | <b>Is the process of destroying magnetism of magnet</b> |

@ difference 01mark .....02 marks

- (c) **Law of polarity, it state that “ like poles of magnets repel while unlike poles of magnets attracts”. .....02 marks**

## 6. Answers

- (a) (i) **Work done is the point of application of force move in the direction of force.**  
 (ii) **Energy is the ability to do work.**  
 (iii) **Power is the rate of doing work. @ 01 mark ..... 03 marks**

(b) Data:  $m = 4200 \text{ kg}$

$$t = 15 \text{ s}$$

$$h = 20 \text{ m}$$

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

**sol:**  $P = \frac{F \times h}{t}$  ..... 01 mark

**but:**  $F = m \times g$  .....0.5 mark

$F = 4200 \text{ kg} \times 10 \frac{\text{N}}{\text{kg}}$  ..... 0.5 mark

$F = 42000 \text{ N}$  ..... 0.5 mark

Then:  $P = \frac{42000 \text{ N} \times 20 \text{ m}}{15 \text{ s}}$  ..... 0.5 mark

$P = 56000 \text{ Watts}$  ..... 0.5 mark

**The power of the lift is 56,000 Watts** ..... 0.5 mark ..... **04 marks.**

(c) Data:  $m = 150 \text{ kg}$

$V = 9 \text{ m/s}$

$\text{K.E} = ?$

**Sol:**  $\text{K.E} = \frac{1}{2} \times m \times V^2$  ..... 01 mark

$\text{K.E} = \frac{1}{2} \times 150 \times 9^2$  ..... 0.5 mark

$\text{K.E} = 6,075 \text{ J}$  ..... 0.5 mark

**The K.E of the motor bike is 6,075 J** ..... 01 mark .....**03 marks**

7. Answer

(a) (i) Real weight is the weight of substance in air. ....01 mark

(ii) Upthrust is the upward force which makes an object float or seem

**lighter.**01mark

(b) Body weight tends to reduce when immersed in liquid **due to upthrust.** ..01mark

(c) Data:  $A = 3 \text{ N}$

$R = 7 \text{ N}$

(i)  $\text{R.D} = ?$

$$R.D = \frac{R}{R-A} \quad \dots 01 \text{ mark}$$

$$R.D = \frac{7}{7-3} \quad \dots 01 \text{ mark}$$

$$R.D = 1.75 \quad \dots 01 \text{ mark}$$

**The relative density of the object is 1.75** ....0.5mark

(ii) Density of object =?

$$R.D = \frac{\text{Density of the object}}{\text{density of water}} \quad \dots 01 \text{ mark}$$

$$\text{Density of the object} = 1.75 \times 1 \text{ g/cm}^3 \quad \dots 01 \text{ mark}$$

$$\text{Density of the object} = 1.75 \text{ g/cm}^3 \quad \dots 01 \text{ mark}$$

**The density of the object is 1.75 g/cm<sup>3</sup>** ...0.5mark

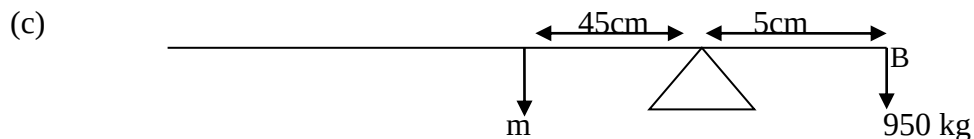
## 8. Answers

(a) Conditions for equilibrium

(i) **The sum of the forces in one direction must be equal to the sum of the forces in the opposite direction.**

(ii) **The Sum of clockwise moment should be equal to the sum of anticlockwise moment.** .....@02marks... 4marks

(b) Unstable equilibrium **It occurs when a body is slight displaced and the body it does not returns to its original position after displacement** while neutral equilibrium **this occurs when a body is slight displaced and the body does not alter the position of the center of gravity.** .... 02marks



From principle of moment

$$\text{clockwise moment} = \text{anticlockwise moments} \quad \dots 01 \text{ mark}$$

$$950 \text{ g} \times 5 \text{ cm} = 45 \text{ cm} \times m \quad \dots 01 \text{ mark}$$

$$m = 105.56 \text{ g} \quad \dots 01 \text{ mark}$$

**Mass of the ruler is 105.56 g** ...01mark

#### 9. ANSWER

(a) Pressure **is the force acting normal per unit area**. SI unit is **Pascal**. ...02mark

(b) Sharp knife **has small area which produce high pressure thus cut piece of meat easily**, blunt knife is the vise versa. ...02marks

(c) Data:  $\text{force} = \text{density} \times \text{volume} \times \text{gravity}$  ...01mark

$$\text{force} = 25 \frac{\text{kg}}{\text{m}^3} \times 1.2 \text{ m} \times 0.5 \text{ m} \times 2 \text{ m} \times 10 \frac{\text{N}}{\text{kg}} \quad \dots 01 \text{ mark}$$

$$\text{force} = 300 \text{ N} \quad \dots 01 \text{ mark}$$

$$\text{maximum pressure} = \frac{\text{force}}{\text{small area}} \quad \dots 01 \text{ mark}$$

$$\text{maximum pressure} = \frac{300 \text{ N}}{1.2 \text{ m} \times 0.5 \text{ m}} \quad \dots 01 \text{ mark}$$

$$\text{maximum pressure} = 500 \frac{\text{N}}{\text{m}^2} \quad \dots 0.5 \text{ mark}$$

**The maximum pressure which can be exerted when placed on a flat ground is**

**500 Pa.** ...0.5mark

#### 10. Answer

(a) (i) Simple machine is any device which used to simplify work. ...1mark

(ii) Mechanical Advantage is the ratio of load to effort. ...1mark

(iii) Velocity ratio is the ratio of effort arm to load arm. ...1mark

(b) Data:  $L = 600 \text{ N}$

$$L d = 4 \text{ cm}$$

$$E = 300 \text{ N}$$

$$E d = 12 \text{ cm}$$

$$(i) \quad M.A = \frac{\text{load}}{\text{effort}} \quad \dots 0.5 \text{ mark}$$

$$M.A = \frac{600 \text{ N}}{300 \text{ N}} \quad \dots 0.5 \text{ mark}$$

$$M.A = 2 \quad \dots 0.5 \text{ mark}$$

Mechanical advantage is 2  $\dots 0.5 \text{ mark}$

$$(ii) \quad V.R = \frac{\text{Effort distance}}{\text{load distance}} \quad \dots 0.5 \text{ mark}$$

$$V.R = \frac{12 \text{ cm}}{4 \text{ cm}} \quad \dots 0.5 \text{ mark}$$

$$V.R = 3 \quad \dots 0.5 \text{ mark}$$

Velocity Ratio is 3  $\dots 0.5 \text{ mark}$

$$(iii) \quad \text{efficiency} = \frac{M.A}{V.R} \times 100\% \quad \dots 0.5 \text{ mark}$$

$$\text{efficiency} = \frac{2}{3} \times 100\% \quad \dots 0.5 \text{ mark}$$

$$\text{Efficiency} = 66.67\% \quad \dots 0.5 \text{ mark}$$

The efficiency of the machine is 66.67 %  $\dots 0.5 \text{ mark}$

(c) Efficiency of machine is never 100% due to **some of the effort applied is used to overcome friction between parts of machine.**  $\dots 0.1 \text{ mark}$