

Student's Assessment Number.....

**TAHOSSA KINONDONI AND UBUNGO DISTRICTS  
NON-GOVERNMENT SECONDARY SCHOOLS  
FORM TWO MOCK ASSESSMENT**

**031****PHYSICS****Time: 2:30 Hours****Year: 2022****Instructions**

1. This paper consists of sections A, B and C with a total of **ten (10)** questions.
2. Answer **all** questions
3. Section A carries **fifteen (15)** marks, section B **seventy (70)** marks and section C carries **fifteen (15)** marks.
4. All writing must be in the spaces provided
5. Cellular phones, calculators and any unauthorized materials are not allowed in assessment room.
6. Write your **Assessment Number** at the top right corner of every page.
7. Where necessary, the following constant may be used
  - (i) Acceleration due to gravity,  $g = 10\text{N/kg}$  or  $10\text{m/s}^2$
  - (ii) Density of water =  $1\text{g/cm}^3$  or  $1000\text{kg/m}^3$

| <b>FOR ASSESSOR'S USE ONLY</b> |              |                            |
|--------------------------------|--------------|----------------------------|
| <b>QUESTION NUMBER</b>         | <b>SCORE</b> | <b>ASSESSOR'S INITIALS</b> |
| 1                              |              |                            |
| 2                              |              |                            |
| 3                              |              |                            |
| 4                              |              |                            |
| 5                              |              |                            |
| 6                              |              |                            |
| 7                              |              |                            |
| 8                              |              |                            |
| 9                              |              |                            |
| 10                             |              |                            |
| <b>TOTAL</b>                   |              |                            |
| <b>CHECKER'S INITIALS</b>      |              |                            |



**Student's Assessment Number.....****SECTION A (15 Marks)**Answer **all** questions in this section

1. For each of the item (i) – (x), choose the correct answer from the given alternatives and write its letter in the boxes provided.
- (i) What is the name given to the people who study and work professionally in the field which relates matter and energy?  
A. Scientists C. Physicists  
B. Gastronomists D. Geographycists
- (ii) Which instrument will you use to measure accurately the inside diameter of a bottle neck?  
A. Tape measure C. Meter rule  
B. Micrometer screw gauge D. Vernie calipers
- (iii) Why does a body float in a fluid?  
A. Because its density is greater than the density of the fluid displaced  
B. Because its density is less than the density of fluid  
C. Because the weight of the fluid displaced is equal to its weight  
D. Because the weight of the fluid displaced is less than its weight
- (iv) What will be the number of images formed when two plane mirrors are set perpendicular to each other?  
A. 4 B. 3 C. 5 D. 2
- (v) Which of the following groups of machines represent the first class levers?  
A. Wheel barrow and bottle opener  
B. Fishing rod and sugar tongs  
C. Crowbar and claw hammer  
D. Nutcracker and pair of scissors
- (vi) Why an atom is electrically neutral?  
A. It consists of equal number of electrons  
B. It consists of equal number of protons and electrons  
C. It consists of equal number of electrons and neutrons  
D. It consists of equal number of protons and neutrons
- (vii) Why do beans seem to swell up when soaked in water for overnight?  
A. Due to diffusion action C. Due to adhesive force  
B. Due to capillary D. Due to osmosis process
- (viii) What does someone pay for of he/she buys sugar from the shop  
A. Mass B. Density C. Volume D. Weight

Student's Assessment Number.....

- (ix) What is the total resistance of two resistors of resistance  $2\Omega$  respectively when connected in parallel?  
 A. 1.2                      B. 5                      C. 6                      D. 1

- (x) A smell of rotten egg can be felt through the process of  
 A. Diffusion                      C. Osmosis  
 B. Evaporation                      D. Transpiration

2. Match each item in **List A** with a correct response in **List B** by writing a letter of a correct response below the corresponding item number in the table provided

| List A                                               | List B                   |
|------------------------------------------------------|--------------------------|
| (i) Good conductor of heat                           | A. Hypsometer            |
| (ii) Uses mercury and alcohol as thermometer liquids | B. $100^{\circ}\text{C}$ |
| (iii) Freezes at $-115$                              | C. Alcohol               |
| (iv) Steam point                                     | D. Thermometer           |
| (v) Determines upper fixed point of thermometer      | E. Mercury               |
|                                                      | F. $273\text{K}$         |
|                                                      | G. Hydrometer            |

**Answers**

| List A | (i) | (ii) | (iii) | (iv) | (v) |
|--------|-----|------|-------|------|-----|
| List B |     |      |       |      |     |

**SECTION B (70 Marks)**Answer **all** questions in this section

3. (a) When does a force is said to be weight?

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- (b) Write down two similarities between force and weight

| Force | Weight |
|-------|--------|
| (i)   |        |
| (ii)  |        |

**Student's Assessment Number.....**

(c) A body has a mass of 10kg. What does it weigh when?

(i) On the Earth

(ii) On the Moon

4. (a) Name and state the principle applied in working of simple pendulum

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(b) Briefly draw and explain the energy changes which occur when the bob of a simple pendulum swings from one side to another.

| Diagram | Explanation |
|---------|-------------|
|         |             |

(c) A ball of mass 500g is dropped from a height of 10m and on impact with the ground, it losses 30J of energy. Calculate the height it reaches on the rebound

**Student's Assessment Number.....**

5. (a) Mention and state the principle applied in working of beam balance

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- (b) List at least two applications of the principle mentioned in part (a) above.

(i) .....  
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(ii) .....  
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- (c) A uniform half-metre rule scale AB is balanced horizontally across a knife edge placed 15cm from A. A mass of 30g is hung from the end A. What is the

- (i) Mass of the scale?

- (ii) The force exerted on the scale by the knife edge?

**Student's Assessment Number.....**

6. (a) Explain three parameters on which the pressure in liquid can be categorized

(i) .....

(ii) .....

(iii) .....

(b) Explain why dams are constructed thicker at the bottom than at the top

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(c) A submarine has a surface area of approximately  $82,000\text{m}^2$ . If it is travelling at a depth of 300m in the ocean, what is the total force on the submarine's outer hull?

7. (a) Explain any two applications of gravitational force (acceleration due to gravity)

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(b) Write down three equations of motion for the freely falling bodies

(i) .....

(ii) .....

(iii) .....

Student's Assessment Number.....

- (c) A stone is thrown vertically upwards with velocity of 40m/s. Find the
- (i) Maximum height reached

- (ii) Total distance covered by the stone

8. (a) Explain the following terms as applied to simple Machine (Screw jacks)

- (i) Pitch of the Screw

- (ii) Velocity ratio of the Screw

- (b) A Screw jack with a pitch of 0.1cm and a handle of length 21cm is used to raise a car of weight 528N. If the efficiency of the screw is 20%. Calculate the

- (i) Velocity ratio

**Student's Assessment Number.....**

(ii) Mechanical advantage

(iii) Effort to raise the car

9. (a) Explain any two practical examples where impulse of forces and momentum play an important role

(i) .....

(ii) .....

(b) Explain the following phenomenon using Newton's 3<sup>rd</sup> law of motion

"An inflated balloon is released and shoots all around the room"

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(c) "Your inertia can kill you! With reference to moving vehicles, discuss the physics behind this statement

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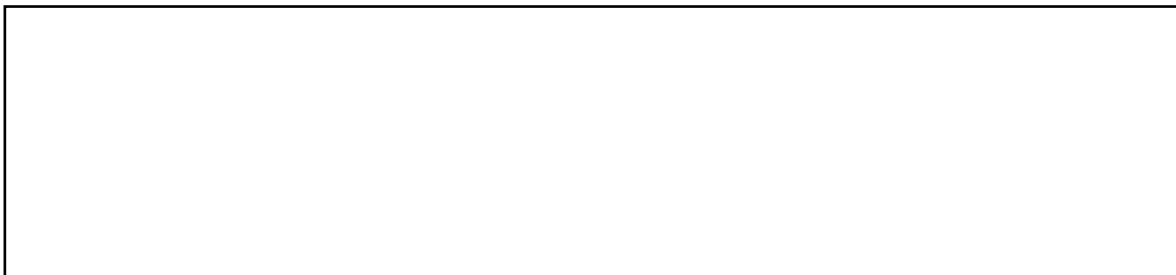
**Student's Assessment Number.....**

**SECTION C (15 Marks)**

Answer **all** questions in this section

10. (a) Draw the circuit diagram for the following

(i) Resistor



(ii) Rheostat



(iii) Galvanometer



(b) Why is it advised to connect bulb in parallel arrangement during installation of electricity in most building?

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(c) Draw a simple circuit to show two bulbs in series connected to a battery of two

