



# TANZANIA HEADS OF ISLAMIC SCHOOLS COUNCIL

## FORM TWO INTER ISLAMIC MOCK ASSESSMENT

### PHYSICS

**031**

**TIME: 2:30 Hours**

**Tuesday, 04<sup>th</sup> August 2026 a.m.**

#### Instructions

1. This paper consists of sections A, B and C with a total of ten (10) questions.
2. Answer **all** questions in each section in the spaces provided.
3. All writings must be in blue or black ink, except drawings, which must be in pencil.
4. Communication devices and any unauthorised materials are not allowed in the assessment room.
5. Write your Assessment Number at the top right corner of every page of this paper.
6. Where necessary, the following constants may be used:
  - $\pi = 3.14$
  - Acceleration due to gravity  $g = 10\text{m/s}^2$ .

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

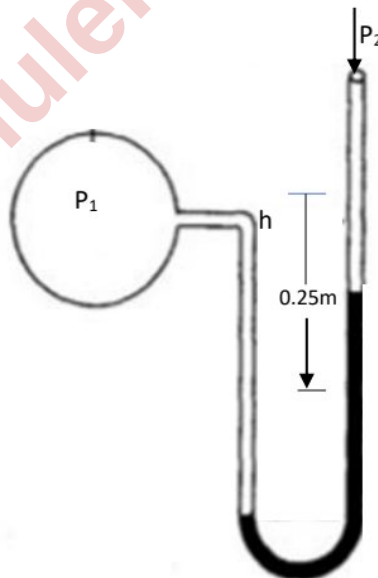
(c) Calculate the average velocity for the journey, assuming it is a straight line. **[04 marks]**

7. (a) While standing at the edge of a swimming pool, Shaaban notices that the bottom of the pool appears closer to the surface than it actually is. When he steps into the pool, he realises it is deeper than it looked from the outside.

(i) Which property of light makes the pool of water look shallow? **[01 mark]**

(ii) What is the main cause of the property you tested in (i) above? **[03 marks]**

- (b) A U-tube manometer contains mercury ( $\rho = 13,600 \text{ kg/m}^3$ ), one side is connected to a gas at pressure  $P_1$  and the other side is open to atmosphere at pressure  $P_2 = 1 \times 10^5 \text{ Pa}$ . The difference in mercury level between the two arms is  $h = 0.25 \text{ m}$ , as shown in the diagram



**TANZANIA HEADS OF ISLAMIC SCHOOLS COUNCIL**  
**FORM TWO INTER ISLAMIC MOCK ASSESSMENT**  
**PHYSICS**

**MARKING SCHEME JULY/AUGUST, 2026**

1. **01 mark @**

|     |      |       |      |     |      |           |        |      |     |
|-----|------|-------|------|-----|------|-----------|--------|------|-----|
| (i) | (ii) | (iii) | (iv) | (v) | (vi) | (vii)     | (viii) | (ix) | (x) |
| C   | A    | A     | B    | A   | D    | NO ANSWER | C      | C    | A   |

2. **01 mark @**

|     |      |       |      |     |
|-----|------|-------|------|-----|
| (i) | (ii) | (iii) | (iv) | (v) |
| C   | D    | A     | B    | E   |

3. (a) (i) Convex mirror (Diverging mirror) **01mark**  
(ii) The mirrors are preferred because they form upright images which are smaller/diminished with wide field of view. **03 marks**

(b) Given data

$$\mu = 25\text{cm}$$

Size: If  $h_o = h_i$ , then  $h_i = 2h_o$ . (Image is larger twice as the object)

$$\text{Magnification } m = \frac{h_i}{h_o} = \frac{2h_o}{h_o} = 2$$

$$\therefore m = 2$$

**01mark**

$$\text{In turn; } m = \frac{v}{u}$$

$$2 = \frac{v}{25\text{cm}}$$

$$\underline{\underline{V = 50\text{cm}}} \quad \textbf{01mark}$$

We can now find focal length,  $f$

$$\text{From } \frac{1}{f} = \frac{1}{u} + \frac{1}{v} \quad \textbf{01mark}$$



**THE UNITED REPUBLIC OF TANZANIA**  
**MINISTRY OF DEFENCE AND NATIONAL SERVICE**  
**MILITARY SCHOOLS ASSOCIATION**



**FORM TWO PRE NATIONAL ASSESSMENT**

**031**

**PHYSICS**

**TIME: 2:30 Hours**

**07<sup>th</sup> AUGUST 2026**

**INSTRUCTIONS**

- 1 . This paper consists of section A , B and C with total of ten ( 10 ) questions .
- 2 . Answer ALL the questions .
- 3 . All writing must be in blue or black ink , except drawing which must be in pencil .
- 4 . Communication devices and any unauthorized materials are not allowed in the assessment room .
- 5 . Write your assessment number at the top right corner of every page .
- 6 . Where necessary the following constants may be used .
  - ( i ) Acceleration due to gravity ,  $g = 10 \text{ m/s}^2$
  - ( ii ) Density of water  $\rho_w = 1 \text{ g/cm}^3$  or  $1000 \text{ Kg/m}^3$

| Question number | For Assessor's use only |                    |
|-----------------|-------------------------|--------------------|
|                 | Score                   | Assessor's initial |
| 1               |                         |                    |
| 2               |                         |                    |
| 3               |                         |                    |
| 4               |                         |                    |
| 5               |                         |                    |
| 6               |                         |                    |
| 7               |                         |                    |
| 8               |                         |                    |
| 9               |                         |                    |
| 10              |                         |                    |
| Total           |                         |                    |

THE UNITED REPUBLIC OF TANZANIA,  
MINISTRY OF EDUCATION SCIENCE AND TECHNOLOGY  
MILITARY SCHOOL ASSOCIATION  
FORM TWO PRE-NATIONAL MARKING SCHEME  
PHYSICS

YEAR: AUGUST 2026

SECTION A (15 MARKS).

1.

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

Marks @ 01.

2.

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

Marks @ 01.

SECTION B (70 MARKS).

3

(a) Two properties of gravitational force

(i) It is always an attractive force ----- 01 mark

(ii) It is the weakest of the four fundamental force ----- 01 mark.

(b)

Data given

Weight on earth ( $W_e$ ) = 10,000 N

Weight on planet X ( $W_x$ ) = 300 N

Acceleration due to gravity on earth ( $g_e$ ) = 10 m/s<sup>2</sup>

Required acceleration due to gravity on planet.

Solution

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

KILIMANJARO REGION COMMISSIONER'S OFFICE

FORM TWO POST MOCK ASSESSMENT

031

PHYSICS



Time: 2:30Hours

Friday 14<sup>th</sup> August 2026am

INSTRUCTIONS

1. Write your answers clearly and neatly in the space provided or on the answer sheet provided.
2. Use **blue or black ink** for writing. **Pencil should be used for diagrams only.**
3. Use SI units where applicable.
4. Electronic devices are not allowed except a non-programmable calculator.
5. The constants used:

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

| FOR ASSESSOR'S USE ONLY |       |                         |
|-------------------------|-------|-------------------------|
| QUESTION NUMBER         | SCORE | INITIAL OF THE EXAMINER |
| 1                       |       |                         |
| 2                       |       |                         |
| 3                       |       |                         |
| 4                       |       |                         |
| 5                       |       |                         |
| 6                       |       |                         |
| 7                       |       |                         |
| 8                       |       |                         |
| 9                       |       |                         |
| 10                      |       |                         |
| TOTALS                  |       |                         |
| CHECKER'S INITIAL       |       |                         |

**THE PRIME MINISTER'S OFFICE  
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT  
FORM TWO EXAMINATION**

**031**

**PHYSICS**

**TIME 2:30 HRS**

**Year 2026**

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**INSTRUCTIONS**

1. This paper consists of sections A and B with a total of **ten (10)** questions.
2. Answer **all** questions in the spaces provided.
3. Section A and C carry **fifteen (15)** marks each and section B carries **seventy (70)** marks.
4. All writing must be in **black** or **blue** ink **except** diagrams which must be in pencil.
5. Communication devices and any unauthorized materials are **not** allowed in the assessment room.
6. Write your **name** at every page.

| FOR EXAMINER'S USE ONLY |       |                    |
|-------------------------|-------|--------------------|
| QUESTION NUMBER         | SCORE | EXAMINER'S INITIAL |
| 1                       |       |                    |
| 2                       |       |                    |
| 3                       |       |                    |
| 4                       |       |                    |
| 5                       |       |                    |
| 6                       |       |                    |
| 7                       |       |                    |
| 8                       |       |                    |
| 9                       |       |                    |
| 10                      |       |                    |

**SECTION A (15 Marks)**



# PHYSICS II – MARKING SCHEME & ANSWER GUIDE

MAXIMUM MARKS: 100 MARKS

## SECTION A (15 Marks)

1. (1 mark for each correct item = 10 Marks)

| Item   | (i) | (ii) | (iii) | (iv) | (v) | (vi) | (vii) | (viii) | (ix) | (x) |
|--------|-----|------|-------|------|-----|------|-------|--------|------|-----|
| Answer | C   | A    | C     | B    | C   | B    | A     | B      | C    | C   |

2. (1 mark for each correct match = 5 Marks)

| List A Item    | (i) | (ii) | (iii) | (iv) | (v) |
|----------------|-----|------|-------|------|-----|
| Correct Letter | B   | C    | A     | E    | D   |

## SECTION B (70 Marks)

3. (10 Marks)

(i) Importance of Personal Protective Equipment (PPE) (2 Marks)

Safety goggles protect the eyes from accidental chemical splashes, glass shards, or intense thermal glare. Laboratory coats shield skin and clothing from direct contact with corrosive or hot liquids, minimizing skin irritation or burns during practical procedures.

(ii) Fundamental vs. Derived Physical Quantities (2 Marks)

- **Fundamental Physical Quantities:** Basic physical quantities that are measured independently and cannot be expressed in terms of other physical quantities (e.g., Mass, Length, Time).
- **Derived Physical Quantities:** Physical quantities that are calculated from combination, multiplication, or division of two or more fundamental physical quantities (e.g., Speed, Density, Pressure).

(iii) Minimizing Parallax Error (2 Marks)



THE UNITED REPUBLIC OF TANZANIA  
PRIME MINISTER'S OFFICE, REGIONAL ADMINISTRATION AND LOCAL  
GOVERNMENT

MOROGORO REGIONAL FORM TWO TERMINAL EXAMINATION



031

PHYSICS

TIME: 2:30Hrs

YEAR: 2026

**Instructions**

1. This paper consists of sections A, B and C with a total of **TEN (10)** questions.
2. Answer **ALL** questions in ALL sections.
3. Mathematical tables may be used.
4. Any communication device and any unauthorized material are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).
6. Where necessary the following constants may be used:
  - (i) Acceleration due to gravity,  $g = 10 \text{ m/s}^2$
  - (ii) Density of water =  $1.0 \text{ g/cm}^3$  or  $1000 \text{ Kg/m}^3$
  - (iii)  $\text{Pi}, \pi = 3.14$ .

| FOR EXAMINER'S USE ONLY |       |                     |
|-------------------------|-------|---------------------|
| QUESTION NUMBER         | SCORE | EXAMINER'S INITIALS |
| 1                       |       |                     |
| 2                       |       |                     |
| 3                       |       |                     |
| 4                       |       |                     |
| 5                       |       |                     |
| 6                       |       |                     |
| 7                       |       |                     |
| 8                       |       |                     |
| 9                       |       |                     |
| 10                      |       |                     |
| TOTAL                   |       |                     |
| CHECKER'S INITIALS      |       |                     |

**SECTION A (16 Marks)**

1. Choose the most correct answer from the given alternatives and write its letter in the answer booklet provided; -



- B. a soft iron core is used  
 C. its resistance is increased  
 D. an electric current flows through it  
 E. It is passed through an electric field
- ix. A material which allows some light to pass through it but one cannot see through it is said to be

- A. Transparent  
 B. Translucent  
 C. Luminous  
 D. Opaque  
 E. Colourless.

- x. Which of the following scientific statements need to be proved through scientific research?

- A. Hypothesis  
 B. Principle  
 C. Conclusion  
 D. Proposal  
 E. Measurement.

2. Match the descriptions of the micrometer screw gauge in List A with responses in List B by writing the letter of the correct response beside the item number **5 marks**

| List A                                                           | List B                |
|------------------------------------------------------------------|-----------------------|
| i. A movable rod of a micrometer screw gauge touching the object | A. Pitch              |
| ii. The distance between the successive threads                  | B. Anvil              |
| iii. Contained in a thimble used to tighten the body             | C. Spindle            |
| iv. Its accuracy has three decimal places in centimeter.         | D. Circular scale     |
| v. Contains linear scale                                         | E. A lock button      |
|                                                                  | F. Ratchet            |
|                                                                  | G. Thimble            |
|                                                                  | H. Sleeve             |
|                                                                  | I. Diameter of a wire |

### SECTION B (70 Marks)

3. (a) (i) Identify three conditions to be satisfied before a body can float.  
 (03 marks)

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- (ii) Outline any three factors affecting the upthrust of the fluid.  
 (03 marks)

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# PHYSICS II – MARKING SCHEME & ANSWER GUIDE

MAXIMUM MARKS: 100 MARKS

## SECTION A (15 Marks)

1. (1 mark for each correct item = 10 Marks)

| Item   | (i) | (ii) | (iii) | (iv) | (v) | (vi) | (vii) | (viii) | (ix) | (x) |
|--------|-----|------|-------|------|-----|------|-------|--------|------|-----|
| Answer | C   | A    | C     | B    | C   | B    | A     | B      | C    | C   |

2. (1 mark for each correct match = 5 Marks)

| List A Item    | (i) | (ii) | (iii) | (iv) | (v) |
|----------------|-----|------|-------|------|-----|
| Correct Letter | B   | C    | A     | E    | D   |

## SECTION B (70 Marks)

3. (10 Marks)

(i) Importance of Personal Protective Equipment (PPE) (2 Marks)

Safety goggles protect the eyes from accidental chemical splashes, glass shards, or intense thermal glare. Laboratory coats shield skin and clothing from direct contact with corrosive or hot liquids, minimizing skin irritation or burns during practical procedures.

(ii) Fundamental vs. Derived Physical Quantities (2 Marks)

- **Fundamental Physical Quantities:** Basic physical quantities that are measured independently and cannot be expressed in terms of other physical quantities (e.g., Mass, Length, Time).
- **Derived Physical Quantities:** Physical quantities that are calculated from combination, multiplication, or division of two or more fundamental physical quantities (e.g., Speed, Density, Pressure).

(iii) Minimizing Parallax Error (2 Marks)



Parallax error is minimized by ensuring the eye is placed at a direct horizontal eye-level with the liquid meniscus, reading the value aligned strictly perpendicular to the graduation mark on the vessel, and taking the level at the bottom of a concave meniscus (or top of a convex meniscus).

**(iv) Purpose of Checking Zero Error (2 Marks)**

Zero error checking ensures that the measuring instrument indicates exactly zero when no quantity is being measured. Identifying and correcting zero error prevents systematic errors that would otherwise offset all subsequent measurements by a constant value.

**(v) Storing Sensitive Apparatus Safely (2 Marks)**

Sensitive apparatus such as beam balances should be cleaned, placed on a flat vibration-free surface, locked/arrested to prevent pan movement, and covered with dust covers in dry, moisture-free storage cabinets away from direct sunlight and corrosive chemical fumes.

**4. (10 Marks)**

**(i) Pressure Difference in Water Supply Systems (2 Marks)**

Liquid pressure increases directly with vertical depth. Since household taps down in the valley lie at a greater vertical depth below the water surface of the elevated reservoir than taps halfway up the hill, the hydrostatic pressure exerted by the column of water is significantly higher in the valley.

**(ii) Design of Reservoir Walls (2 Marks)**

Liquid pressure increases with depth and acts equally in all lateral directions against container walls. The base of the reservoir wall experiences the maximum outward fluid pressure; hence, the lower walls must be constructed thicker and stronger to withstand structural bursting forces without failing.

**(iii) Operation of a Simple Lift Pump (2 Marks)**

When the pump piston moves upward, it creates a partial vacuum in the cylinder below it, reducing internal air pressure. The higher external atmospheric pressure acting on the surface of the underground water pushes water up through the vertical inlet pipe into the lower-pressure cylinder zone.

**(iv) Mercury vs. Water in Barometers (2 Marks)**

Mercury has a very high density compared to water, requiring a barometric glass tube of manageable height (approximately 760 mm) to balance atmospheric pressure. A water barometer would require an impractical glass tube over 10 meters tall due to water's

## SECTION A (15 Marks)

Answer **all** questions in this section

1. For each of the item (i) – (x), choose the correct answer among the given alternatives and write its letter in the box provided **(10 Marks)**

(i) The experimental results are presented in a specific format, so that others can read your work, understand it and repeat the experiment. The structure of a good scientific report includes aim, apparatus, method, results, discussion and:

- |                |                    |
|----------------|--------------------|
| A. Hypothesis, | C. Feedback        |
| B. Conclusion  | D. Experimentation |

(ii) When measuring the volume of liquid using measuring cylinder, care must be taken to avoid some errors. Which one must be taken into consideration?

- |                   |                    |
|-------------------|--------------------|
| A. Initial volume | C. Meniscus        |
| B. Final volume   | D. Level of liquid |

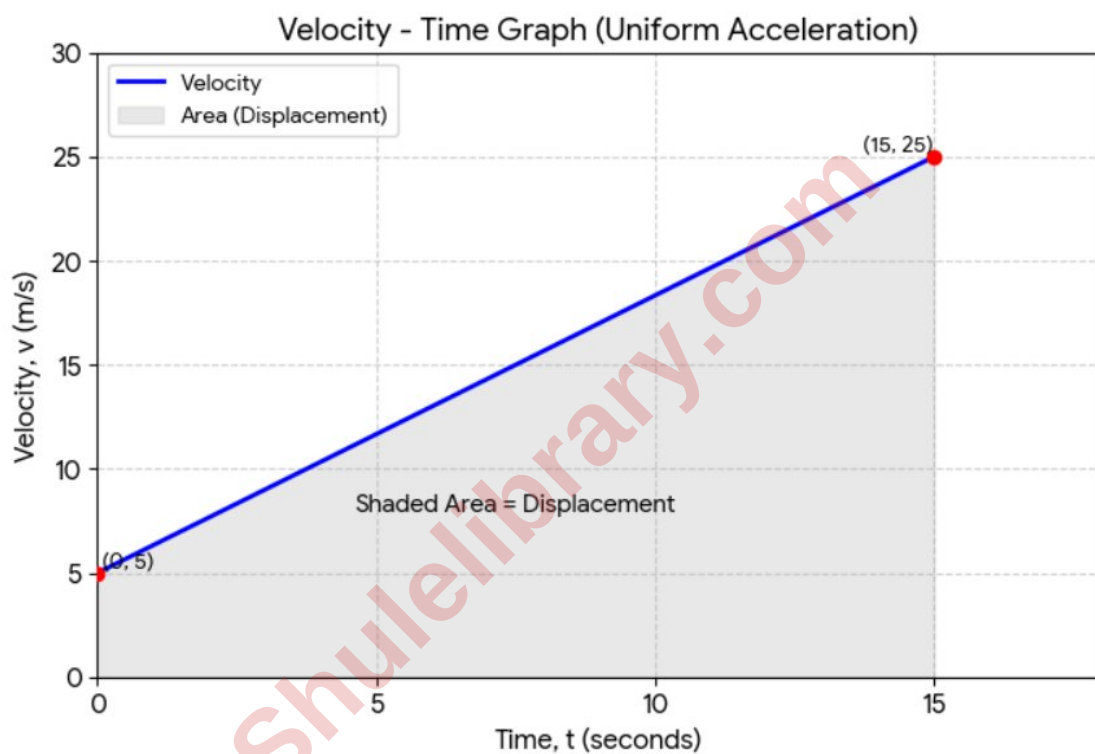
(iii) From the picture below which effects of a force may it describe in physics?



- A. Stretching and compression  
B. Elastic and stretching  
C. Compression and torsional  
D. Gravitational and air resistance

|                           |                                      |
|---------------------------|--------------------------------------|
| Is the rate of distance   | Is the rate of displacement (1 mark) |
| is scalar (no direction); | is vector (has direction). (1 mark)  |

6 (b) (i)



**4 marks**

(b) Distance covered = area under the graph (trapezium)

**1 mark**

$$A = \frac{1}{2}(a + b)h$$

$$\text{Thus distance} = \frac{1}{2}(5 + 25)15$$

$$= 225 \text{ m}$$

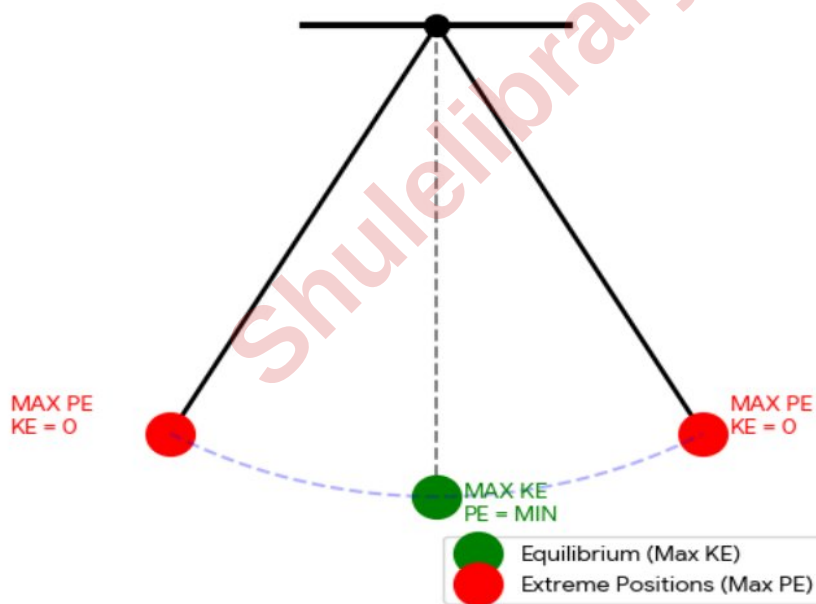
Therefore, total distance travelled during acceleration is 225 m

**1 mark**

7 (a) Wonder wheel becomes hot due to friction converting kinetic energy into heat **4 marks**

(b) Simple pendulum: Energy changes between potential energy (top) and kinetic energy (middle). Consider the figure below

Energy Transformation in a Simple Pendulum



**2 marks**

The motion of a simple pendulum is a classic example of the **Law of Conservation of Energy**. Energy continuously transforms

NAMES : \_\_\_\_\_

SCHOOL : \_\_\_\_\_

## THE UNITED REPUBLIC OF TANZANIA

### FORM TWO JOINT EXAMINATION

CODE: 031

PHYSICS

TIME: 2 hrs.

JUNE, 2026

#### INSTRUCTIONS

1. This paper consists of sections A, B, and C with a total of Ten (10) questions.
2. Answer all questions from each section.
3. Section A carries **Fifteen (15)** marks, section B carries **Seventy (70)** marks and section C carries **Fifteen (15)** marks.
4. All answers should be written in the space provided.
5. Non-programmable calculators may be used.
6. Write your examination number at the top right corner of each page of your answer sheet.
7. Where necessary use the following constants,
  - (i) Acceleration due to gravity,  $g = 10\text{m/s}^2$  or  $10\text{N/kg}$
  - (ii) Density of water =  $1\text{g/cm}^3$  or  $1000\text{Kg/m}^3$
  - (iii) Speed of light in vacuum =  $3 \times 10^8\text{m/s}$

| QUESTION NUMBER | SCORES | EXAMINER INITIALS |
|-----------------|--------|-------------------|
| 1               |        |                   |
| 2               |        |                   |
| 3               |        |                   |
| 4               |        |                   |
| 5               |        |                   |
| 6               |        |                   |
| 7               |        |                   |
| 8               |        |                   |
| 9               |        |                   |
| 10              |        |                   |
| TOTAL           |        |                   |

### SECTION B (70 MARKS)

**Answer ALL questions from this section.**

- [illegible]

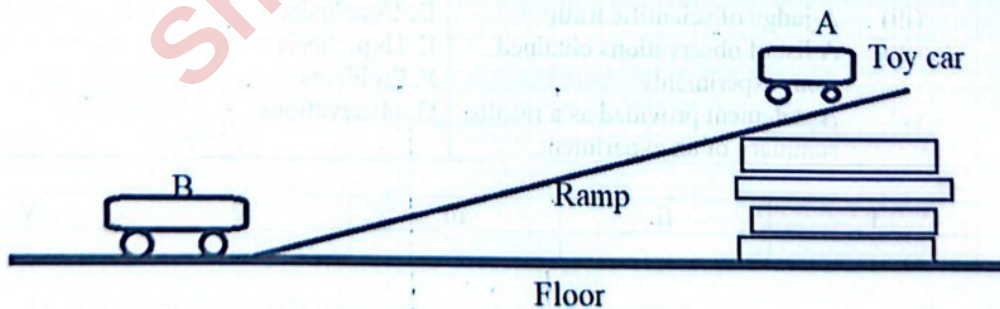
(04 Marks)

- (b) Pistons of hydraulic press have their areas given as  $0.0003 \text{ m}^2$  and  $0.02 \text{ m}^2$  respectively. A  $120 \text{ N}$  is required to push down the small piston, find the force required to push the large piston. (06 Marks)

(06 Marks)

4. (a) **AMBILIKILE** is investigating how the height of a ramp affects the distance of a toy car travels. He changes the height of the ramp and measures the distance of the car travels as shown in Figure. Identify the dependent, independent, and controlled variables in this experiment. (06 Marks)

**(06 Marks)**



- (i).....  
.....  
.....  
(ii).....  
.....  
.....  
(iii).....  
.....  
.....  
(iv).....  
.....  
.....

(b) LANGU, PONDA and NYIGU were conducting an experiment to verify Ohm's law in Laboratory, they were given the following apparatus: A resistor (R), a battery (B) of two cells, a switch (K), an Ammeter (A) and Rheostat (Rh) and Voltmeter (V). Draw a well labeled circuit representing their experiment (06 Marks)

(c) What is the resistance of a constantan wire which has a length of 45cm, a diameter of  $0.37 \times 10^{-3} \text{ m}$  and resistivity of  $4.9 \times 10^{-7} \Omega \text{ m}$ . (05 Marks)

|    |   |    |     |              |   |    |     |      |    |   |
|----|---|----|-----|--------------|---|----|-----|------|----|---|
| 01 | I | II | III | IV           | V | VI | VII | VIII | IX | X |
|    | C | A  | A   | <del>E</del> | B | B  | D   | B    | B  | C |

C

1@ = 10 marks

|    |   |    |     |    |   |
|----|---|----|-----|----|---|
| 02 | I | II | III | IV | V |
|    | G | E  | B   | A  | D |

1@ = 05 marks

- 03 (a) It is due to the fact that the pin has small surface area that leads to high pressure as pressure is inversely proportional to the surface area.

mathematically;

$$P \propto \frac{1}{A}$$

04 marks

∴ when a pin hit a balloon will burst easily.

(b) Soln

Data given;

$$\text{Area } (A_1) = 0.0003 \text{ m}^2$$

$$\text{Area } (A_2) = 0.02 \text{ m}^2$$

$$\text{Force } (F_1) = 120 \text{ N}$$

$$\text{Force } (F_2) = ?$$

from; Pascal principle.

$$\frac{F_1}{A_1} = \frac{F_2}{A_2}$$

02 marks

$$F_2 = \frac{F_1 \times A_2}{A_1}$$

$$F_2 = \frac{120 \times 0.02}{0.0003} \text{ N}$$

02 marks

$$F_2 = 8000 \text{ N}$$

∴ The force required to push the large piston is 8000 N.

02 marks