**Term 1 - 2025**

**PHYSICS (232)**

**FORM TWO CAT**

**Time:** $2 Hours$

**Name**: …………………………………………………………. **Adm** **No**: ……………….

**School**: ……………………………………………………….. **Class**: …………………..

 **Signature**: ……………………………………………………... **Date**: …………………...

**Instructions to Candidates**

* *Write your name, admission number, class and signature in the spaces provided at the top of the page.*
* *Answer* ***ALL*** *the questions in the spaces provided.*
* *All working MUST be clearly shown.*
* *This paper consists of* ***9*** *printed pages.*
* *Candidates should answer the questions in English and check to ensure that no question(s) is missing.*

**FOR EXAMINER’S USE ONLY**

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| --- | --- | --- |
| **QUESTIONS** | **MAXIMUM SCORE** | **CANDIDATE’S SCORE** |
| 1-18 | **51** |  |
|

***Answer all the questions in this section in the spaces provided.***

1. Mechanics is one of the branches of Physics. State what it deals with. (1Mark)

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1. The diagram in figure 1 below shows a section of a meter rule measuring the size of an object. What is the size of the length of the object shown? (1 mark)



*Figure 1*

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1. Name three instruments in a Physics laboratory that can be used to measure volume of a liquid. (3marks)

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1. Students used a stopwatch to take time in a bread eating competition. The display on the stopwatch was 01:24:90. Express the time taken in SI units. (2marks)

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1. When preparing tea, water is mixed with milk.500cm3 of water is mixed with 618 g of milk. Calculate the density of tea given that the density of water and milk is 1000kg/m3.

 (3marks)

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1. The volume of one drop of a liquid was found to be 0.045 ml. If 30 drops were delivered by a burette from an initial reading of the liquid being 11.4 ml, find the final reading of the liquid. (3marks)

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1. Explain why displacement method is unsuitable for determining the volume of irregular shaped solids such as wood blocks, ice and charcoal pieces? (2 mark)

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1. Define force and state its SI units. (2 marks)

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1. Estimate the area of the irregular surface shown in figure below. Use the scale,

 $ Small square=1Km^{2}$ (3marks)



*Figure 2*

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1. Give reasons why the following rules apply in the Physics laboratory (3marks)
2. Never plug foreign objects into electrical sockets.

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1. Never taste, eat or drink anything in the laboratory.

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1. While working in the laboratory, windows and doors should be kept open.

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1. Identify the branch of science that studies matter and its relation to energy. (1mark)

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1. A drug manufacturer gives the mass of an active ingredient in a tablet as 5mg. Express this quantity in kilogram. (1 mark)

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1. In an experiment to determine the density of sand using a density bottle, the following measurements were recorded.

$$Mass of empty density bottle=43.2g$$

$$Mass of density bottle full of water=66. 4g$$

$$Mass of density bottle with some sand=67.g$$

$$Mass of density bottle with the sand filled up with water=82.3g$$

Use the above data to determine the following:

1. Mass of the water that completely filled the density bottle. (1mark )

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1. Volume of water that completely filled the density bottle (2mark )

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1. Volume of the density bottle (1mark )

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1. Mass of sand (1mark)

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1. Mass of water that filled the space above the sand (1mark )

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1. Volume of sand (2mark )

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1. Density of the sand. (2marks)

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1. Identify the types of forces responsible in the following situatons, (5marks)

when;

1. Polished shoes rapidly attract dust due to charges left on them during brushing.

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1. Lighting a matchstick

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1. Swimmers and boats float

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1. a ball thrown upwards returns back to the ground.

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1. a steel razor blade placed carefully on the surface of water floats but sinks when a detergent is added to the water.

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1. The diagram below shows a system of three forces acting on an object. What is the resultant force? State the direction in terms of left or right. (3marks)



*Figure 3*

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1. State with reason why an object on earth has a higher weight than on the moon while the mass remains the same. (2marks)

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1. A man has a mass of 70kg. Calculate:
2. His weight on earth, where the gravitational field strength is 10N/kg. (2marks)

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 b) His weight on the moon, where the gravitational field strength is 1.7N/kg. (2marks)

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1. State two measurements you would take in an experiment to determine the upthrust of an object which is immersed in kerosene. (2marks)

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