Name………………………………….Date………………Candidate’s Signature: ………...…….

Stream ..................Adm.No..................

**PHYSICS THEORY**

Time: 2 hours

**April 2024**

**Kenya Certificate of Secondary Education**

**PHYSICS**

**FORM 1 PHYSICS**

**END TERM 1**

**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* ***8*** *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 | **60** |  |
|

***This paper consists of 8 printed pages. Candidates should check and ascertain that all questions are printed as indicated and that no questions are missing. TURN OVER***

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

1. What is Physics? (1 mark)

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1. State and explain any two branches of physics. (4 marks)

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1. Explain the relationship between Physics and:
2. Religious studies. (1 mark)

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1. Biology. (1 mark)

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1. Geography. (1 mark)

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1. Distinguish between derived physical quantities and basic physical quantities giving examples in each. (4 marks)

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1. The diagram in figure 1 below shows a piece of sewing thread wound 12 times on a ruler.



Figure 1

Determine the thickness of the sewing thread. (3 marks)

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1. a) Draw a $50cm^{3}$ burette containing water of volume $28.2cm^{3}$. (2 marks)

b) If 60 drops of water fell from the burette above, the final level of water was $42cm^{3}$.Calculate the volume of one drop. (3 marks)

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1. Define density and state its S.I units. (2 marks)

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1. Figure 2 below shows a girl viewing an overhead tank carrying a liquid of mass 8,400 kg. the tank is calibrated in $m^{3}$. 

Figure 2

The girl read the volume from the tank and then used it for further calculation.

Determine;

1. The volume of the liquid in the overhead tank in $cm^{3}$. (2 marks)

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1. The density of the liquid as obtained by the girl. (3 marks)

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1. Explain why, while working in the laboratory it is advisable to:
2. NOT touch exposed electrical wires. (1 mark)

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1. NEVER taste, drink or eat anything in the laboratory. (1 mark)

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

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1. Two horizontal springs are attached to a block, resting on a frictionless surface, as shown in figure 3 below. A force of 100N pulls on one spring. The block does not move. Find the value of the force on the other spring. (2 marks)



Figure 3

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1. State 3 effects of a force. (3 marks)

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1. Name any two instruments you would use to measure mass in the laboratory. (2 marks)

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1. An astronaut has a mass of 65Kg on earth’s surface.

Calculate:

1. His weight on earth , given that earths gravitational field strength is $10{N}/{Kg}$.

 (2 marks)

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1. His mass on the moon. (Give a reason for your answer.) (2 marks)

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1. The gravitational field strength of the moon, where his weight was determined to be 108.33N. (2 marks)

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1. Estimate the area of the irregular surface shown in the figure 4 below by counting the small squares. The area of one complete square is 1cm2. (3 marks)

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Figure 4

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

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

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

$$Mass of density bottle with some sand=67.0g$$

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

Use the above data to determine the following:

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

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1. Volume of water that completely filled the density bottle

**(density of water = 1.0 gcm-3)** (2 marks)

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1. Volume of the density bottle. (1 mark)

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1. Mass of sand. (1 mark)

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

………………………………………………………………………………………………………………………………………………………………………………………………

1. Volume of sand. (2 mark)

………………………………………………………………………………………………………………………………………………………………………………………………

1. Density of the sand. (2 marks)

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1. Explain why it is easier to ride a bicycle round a bend on a road if the surface is dry than when it is wet. (1 mark)

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

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