

THE UNITED REPUBLIC OF TANZANIA  
KAGONDO SECONDARY SCHOOL

**PHYSICS FORM 1**  
(For School Candidates Only)

**Time: 2.5 hours**

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1. This paper consists of sections A, B, C.
2. Answer all questions in sections A and B and two (2) questions from section C.
3. Calculators and cellular phones are not allowed in the examination room.
4. Write your Examination Number on every page of your answer booklet(s).
5. Where necessary the following constants may be used:
  - $\pi = 3.14$

**Good luck!**

This exam consist of four (4) pages.

## SECTION A (22 marks)

Answer **all** questions in this section

1. For each of the items (i) - (vi) choose the correct answer among the given alternatives and write its letter beside the item number. (2 marks each)
- (i) Physics as a science deals with
- A the behaviour of living things.
  - B historical developments.
  - C the inner composition of matter.
  - D matter in relation to energy.
  - E business activities.
- (ii) All of the following are applications of Physics **except**
- A x-ray machine in hospitals.
  - B curing an infection with antibiotic medication.
  - C electric cookers for home.
  - D electric lightbulb.
  - E radio and television.
- (iii) Which of the following is **not true** about the SI
- A SI is the abbreviation of “System International d'Unités.”
  - B SI means “International System of Units.”
  - C the SI unit for length is Metre.
  - D the SI unit for mass is Pounds.
  - E there are seven (7) basic physical quantities in the SI.
- (iv) Which of the following is **not** a decimal based prefix in the SI
- A kilo
  - B milli
  - C deci
  - D centi
  - E macro
- (v) Which of the following statements about mass and weight is **true**
- A mass and weight are the same.
  - B weight is measured in Kilograms (kg).
  - C mass is the amount of matter present in an object.
  - D an object has the same weight on earth and on the moon.
  - E the mass of an object depends on the force of gravity.
- (vi) Which of the following is **not true** for the beam balance
- A the beam balance measures the weight of an object.
  - B in a beam balance, the cup containing more mass goes down.
  - C with a beam balance, you compare an unknown mass with known standard masses.
  - D the mass of the object to be measured is the sum of the standard masses used when the beam balance is in balance (both cups are in the same position).
  - E a beam balance would give correct results on the moon also.

2. Match the items in list A with the responses in list B by writing the letter of the correct response beside the item number. (1 mark each)

LIST A	LIST B
i. Temperature	A. Ampere (A)
ii. Luminous intensity	B. Kilogram (kg)
iii. Force	C. Vernier Callipers
iv. Electric current	D. $1 \text{ dm}^3$
v. Length	E. Apples
vi. Time	F. Second (s)
vii. Mass	G. Metre (m)
viii. Amount of substances	H. 0.001m
ix. 1 centimetre (cm)	I. Kelvin (K)
x. 1 litre	J. Newton (N)
	K. Mole
	L. Candela
	M. 0.01m
	N. Cubic Metre ( $\text{m}^3$ )

### SECTION B (58 marks)

Answer **all** questions in this section

3. Choose the right words (given in brackets) for the blanks in the following procedure for measuring the mass of an object with a beam balance, and write the corresponding letter in the blank: (2 marks each)

Starting with empty cups, I place the object to be measured in the first cup. This cup will then go (i) \_\_\_\_\_ (A up / B down). I then start to put the (ii) \_\_\_\_\_ (A lightest / B heaviest) standard masses on the other cup (iii) \_\_\_\_\_ (A one by one / B all at once / C until it is full). When the cup with the standard masses goes (iv) \_\_\_\_\_ (A up / B down), I know the correct number of this type of standard mass. It is (v) \_\_\_\_\_ (A the number that is on the cup / B one less than what is on the cup / C one more than what is on the cup). So I (vi) \_\_\_\_\_ (A continue to put on masses / B take off the last mass I put on). After that, I continue with the next (vii) \_\_\_\_\_ (A lighter / B heavier) standard masses in the same way. I am done when (viii) \_\_\_\_\_ (A the cup with the object is up / B the cups are in balance / C the cup with the standard masses is up). Then I know that the mass of the object is (ix) \_\_\_\_\_ (A less / B equal / C more) to the (x) \_\_\_\_\_ (A sum / B difference / C product) of the standard masses.

4. A beam balance is in balance (cups are in the same position), with a backpack in the first cup and the following standard masses in the other cup:  
 1kg, 1kg, 500g, 100g, 100g, 100g, 50g  
 What is the mass of the backpack? (10 marks)

5. Convert the following measurements to the corresponding standard SI units. (2 marks each)
- (i) 1 litre
  - (ii) 100cm
  - (iii) 2 minutes
  - (iv) 1 hour
  - (v) 55cm
  - (vi) 2.5km
  - (vii) 1ml (millilitre)
  - (viii) 10,000cm<sup>3</sup>
  - (ix) 550ms (milliseconds)
6. A wooden block has the dimensions 15cm x 5cm x 10cm (length x height x width). What is the volume of the block? Give the solution in cm<sup>3</sup> and litres. (10 marks)

### SECTION C (20 marks)

Answer **any two (2)** questions from this section (10 marks each)

7. A bucket has an inner radius of 10cm and height of 30cm. What is the volume of the bucket? Is it possible to carry 10 litres of water with this bucket?
8. Compare the volume of two rods. The first has a radius of 1cm and length of 50cm, the second has a radius of 2cm and length of 25cm. What are the volumes of the rods? Which has more volume?
9. You measure the mass of an object on a beam balance using the procedure taught in class. The standard masses you can use are of 1kg, 0.5kg, 100g, and 50g. When the beam balance is in balance (cups are at the same position), how many of each standard mass will be on the cup if the object has a mass of 1.45kg?

**THE END**

Enjoy your holidays and all the best for your future!