

MKALAMA DISTRICT COUNCIL
FORM TWO MOCK ASSESSMENT
PHYSICS

Time: 2:30 Hours

Year: 2025

Instructions

1. This paper consists of section A, B and C with a total of ten (10) questions.
2. Answer all questions.

SECTION A (15 Marks)

Answer **all** questions in this section.

1. For each of the items (i) – (x), choose the correct answer from the given alternatives and write its letter in the answer sheet provided.
 - (i) Why does a piece of steel sink in water but a steel ship floats?
 - A. The density of the steel ship is less than the density of water
 - B. Steel is denser than the steel ship
 - C. Steel ship has the same density to that of steel
 - D. The average density of the steel ship is less than the density of water
 - (ii) What is the name given to the people who study and work professionally in the field which relates matter and energy?
 - A. Physicist
 - B. Geophysicist
 - C. Scientist
 - D. Botany
 - (iii) Which value of a capacitor would you advice your friend to use in order to replace a set of $3\mu\text{F}$, $6\mu\text{F}$, and $9\mu\text{F}$ capacitors in parallel?
 - A. $1.64\mu\text{F}$
 - B. $16.4\mu\text{F}$
 - C. $18.0\mu\text{F}$
 - D. $1.80\mu\text{F}$
 - (iv) What is the SI unit of the capacitance?
 - A. Coulumb
 - B. Ampere
 - C. Farad
 - D. Volts
 - (v) Why are the walls of a dam thicker at the bottom than at the top?
 - A. Weight of water at the bottom is less
 - B. Pressure of water at the bottom is less
 - C. Weight of water at the bottom is greater
 - D. Pressure of water at the bottom is greater
 - (vi) The rate of flow of electrons in a material is called.

- A. Charging B. Potential difference C. Electric current D. Resistivity
- (vii) The fundamental Quantities of measurement are
- A. Length, Acceleration and Time B. Length, Mass and Time
- C. Speed, Velocity and Acceleration D. Length, Velocity and Time
- (viii) One of the following apparatus can be used to measure depth of a beaker with an accuracy of 0,01cm
- A. A ruler B. A micrometer screw gauge C. A vernier caliper D. Tape measure
- (ix) A bus carrying a very big load on its carrier can easily overturn because
- A. Its center of gravity is high B. Its equilibrium is stable C. Its Centre of gravity is low D. It is more stable and can run fast
- (x) The SI unit of electric current is
- A. Volts B. Ohms C. Ampere D. Coulomb

2. Match each item in **List A** against its corresponding item from **List B** by writing the correct response in the space provided. **(5 marks)**

List A	List B
i. Keep magnet away from the source of heat.	A. Magnetic field.
ii. The substance which cannot be magnetized or attracted by magnet	B. Magnetic induction
iii. The point in which the magnetic field is zero.	C. Storage of magnet
iv. The region around magnet which can attract magnetic materials.	D. Storage of point charge
v. The arrangement of magnetic dipoles in groups	E. Neutral point
	F. Magnetic domain
	G. Non-magnetic material

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

3. (a) Advise a laboratory technician three appropriate ways of storing magnets so that they can last longer **(6 marks)**
 (b) Using vivid examples, identify four application of magnets in our daily life. **(4 marks)**
4. (a) Differentiate between Magnetization and Demagnetization **(4 marks)**
 (b) Describe three ways in which magnets can be destroyed. **(6 marks)**
5. (a) Distinguish between capacitor and capacitance. **(4 marks)**
 (b) List three types of capacitors that you know **(3 marks)**
 (c) State fundamental law of static electricity **(3 marks)**
6. (a) A capacitor of two parallel plates separated by air has a capacitance of **0.5 F**. A potential difference of **18 volts** is applied across the plates. Determine the charge on the capacitor. **(5 marks)**
 (b) What value of capacitor could be used to replace a set of $5\ \mu\text{F}$, $10\ \mu\text{F}$ and $15\ \mu\text{F}$ capacitors connected in series **(5 marks)**
7. (a) A simple machine has a velocity ratio of 5, and it is 80% efficient. What effort would be needed to lift a load of 200N with the aid of this machine? **(6 marks)**
 (b) The efficiency of a simple machine is never 100%. Why? **(4 marks)**
8. (a) Juma a form two student undo a nut on a bolt by using a long stem spanner than using a short stem spanner why do you think it is suitable to use such spanner. **(4 marks)**
 (b) A Form two student was teaching a form four student about forces in equilibrium and they decide to perform this experiment. A uniform half meter rule is freely pivoted at 15cm mark and balances horizontally when a body of mass of 40g is hung from a 2cm mark
 i. Draw a clearly labelled diagram to illustrate the forces on a half metre rule. **(3 marks)**
 ii. Calculate the mass of the rule. **(3 marks)**
9. (a) In pulley system, a load of 400N requires an effort of 100N to raise it. What is the mechanical advantage? **(4 marks)**
 (b) If the efforts moves through a distance of 10m, and the load is then moved up a distance of 2m, calculate the velocity ratio and the efficiency of the machine. **(6 marks)**

SECTION C (15 Marks)

Answer question **ten (10)**.

10. Suppose you are a physics laboratory leader and you are asked by your teacher to prepare the electrical components and instruments for an experiment to determine the relationship between voltage and current:
 - (a) List five electrical components which will be used in this experiment. **(5 marks)**
 - (b) Draw a simple electric circuit which will be suitable for that experiment. **(5 marks)**
 - (c) Using the simple electric circuit drawn in 10 (b), state the criteria used to connect the ammeter and voltmeter electrical components in the circuit. **(5 marks)**