



**UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE REGIONAL
ADMINISTRATION AND LOCAL GOVERNMENT
IWAWA SECONDARY SCHOOL
FORM TWO TERMINAL EXAMINATION
PHYSICS**



031

Time: 2:30 Hours

MAY, 2026

Instructions

1. This paper consists of sections A, B and C.
2. Answer all questions in sections A and B and two (1) questions from section C.
3. All writings must be in blue or black ink, except for diagrams which must be in pencil.
4. Cellular phones and any unauthorized materials are not allowed in the examination room
5. Write your Name on every page of your answer booklet(s)
6. Where necessary the following constants may be used:
 - (i) Acceleration due to gravity $g = 10\text{N/kg}$.
 - (ii) Pie $\pi = 3.14$
 - (iii) Density of water = 1000kg/m^3 (1g/cm^3)

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SECTION A (15 marks)

Answer **all** question in this section

1. Choose the correct answer for the following items from the given alternatives and write it beside the item number.

(i) Which set best represents fundamental quantities with their SI Units?

- A. Length(Km), mass(Kg), time(s), temperature($^{\circ}$ C) amount of substance(mol) and electric current(A)
- B. Length(m), mass(kg), force(N), temperature(K), time(s), amount of substance(mol) and energy(J)
- C. Length(m), mass(kg), time(s), electric current(I), temperature($^{\circ}$ C) and amount of substance(mol)
- D. Length(m), mass(kg), time(s), temperature(K), electric current(A) and luminous intensity(Cd)

(ii) A capacitor is used to store electric charge in the form of electric field. Which of the following explains why capacitor is highly? Employed in most electronic devices and communications?

- A. Capacitors are fabricated
- B. Capacitors are used as filters, smoothers, indicators and clippers
- C. Capacitors are cheap
- D. Capacitors are not complicated in design

(iii) A measuring cylinder contains liquid to a level X. An object of volume Z is totally immersed in the liquid contained in the cylinder. The new reading of the level of the liquid will be:

- A. X
- B. $X - Z$
- C. $X + Z$
- D. $Z - X$

(iv) What should you do if you find yourself outdoors during severe thunderstorms?

- A. Take shelter under the nearest tree
- B. Stand under power lines.
- C. Move to higher ground.
- D. Hide in a ditch.

(v) The similarity between force and weight is:-

- A. Force and weight have same meaning
- B. Force and weight has same SI unit
- C. Force is the SI unit of weight
- D. Force and weight come from the same topic

(vi) What are the two factors that determine Buoyancy?

- A. Volume of fluid displaced and mass of the object.
- B. Density of the fluid and weight of the object.
- C. Volume of the fluid displaced and density of the fluid.
- D. Mass of the object and density of the object.

(vii) What charge is stored in a capacitor of capacitance $200\mu\text{F}$ connected across a potential difference 10V ?

- A. $2 \times 10^{-6} \text{ C}$
- B. 2 C .
- C. 2000 C .
- D. 2 mC .

(viii) Why an atom is electrically neutral?

- A. It consists of equal number of electrons
- B. It consists of equal number of protons and electrons
- C. It consists of equal number of protons and neutrons
- D. It consists of equal number of electrons and neutrons

(ix) Which statement distinguishes gravity from gravitational force?

- A. Gravity is the force that pulls objects towards the earth while gravitational force is the attractive force existing between any two objects
- B. Gravity is the force of attraction between two objects while gravitational force is the force acting to pull objects towards the earth
- C. Gravity is sometimes called universal gravity while gravitational force is also called centripetal force
- D. Gravity is applicable from largest stars to the smallest atoms while gravitational force does not

(x) Which of the following is true about atmospheric pressure?

- A. Decrease as one moves above sea level
- B. Increase as one moves above the sea level
- C. Is higher on the moon than on the earth
- D. Is the same as one's body internal pressure at high altitude

i	ii	iii	iv	v	vi	vii	viii	ix	x

2. Match each item in LIST A with a response in LIST B by writing its letter in the given space below.

LIST A	LIST B
i Ammeter ii $V \propto I$ iii Rheostat iv Series connection v Charge	A. Measure p.d B. Measure current C. Ohms D. Controls current E. Ohm's law F. Constant p.d G. Galvanometer H. Constant current I. Coulomb

Answers

LIST A	i	ii	iii	iv	v
LIST B					

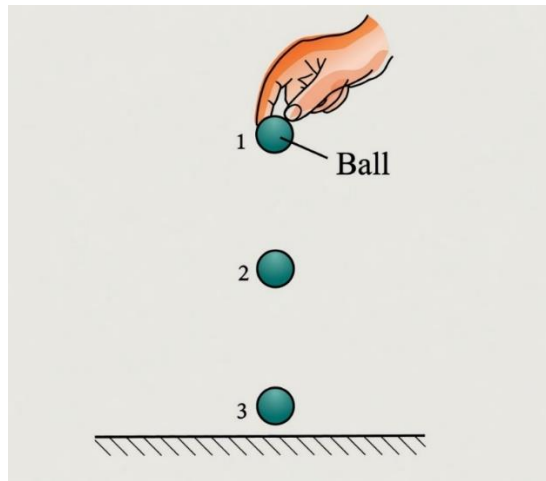
SECTION B (70 Marks)

Answer all questions in this section.

3. (a) Explain why petrol road tankers usually have a length of metal chain hanging down touching the ground?.(4 Marks)

(b) Explain the three (3) electrostatic methods of charging object. (2 Marks@)

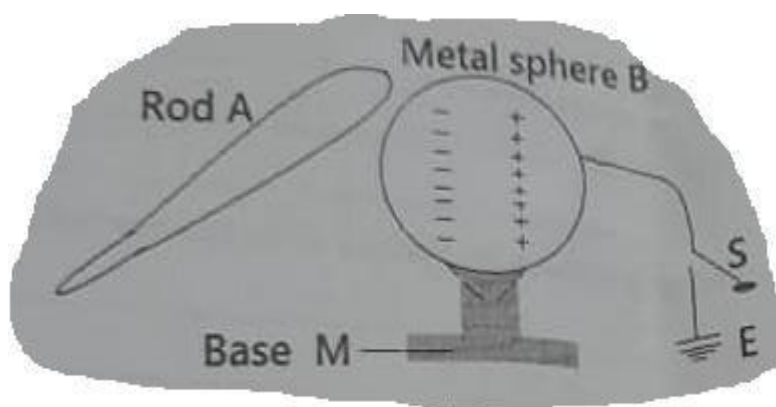
4. A student investigating the energy changes when a ball is dropped from a height. The figure below illustrates the energy changes when a ball is released at three different positions.



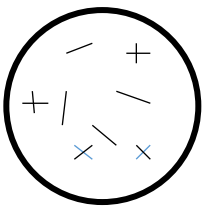
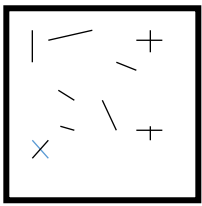
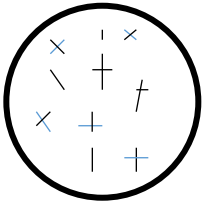
Ignore the effect of air resistance. Give only the statement on how can you can express the total energy of the ball. **(10 marks)**

5. Physics is the fundamental branch of science as it provides tools for learning other disciplines. The following statements provide an insight into how physics is connected with other disciplines. Classify the statements according to the respective field and suggest the set of instruments designed using physics theories and principles to assist the working of other fields if any: **(10 marks)**
- (a) Exploration of the very far objects in the sky.
 - (b) Diagnosis of disease and treatment of living organisms.
 - (c) Behavior of atoms and molecules, studying energy changes during chemical reactions.
 - (d) Study of climate, weather patterns, ocean currents, and the behavior of Earth's crust.
 - (e) Design and optimize technologies, structures, and systems

6. (a) Observe the diagram below which shows charging (electrification) by bringing **Rod A** near but not touch **Metal Sphere B**. (1 mark @)



- i State the type of charge possessed by **Rod A**
 - ii What will happen to **metal sphere B** if switch **S** is closed.....
 - iii State the property of material **M**.....
 - iv Which law applied to this process.....
 - v Which type of charge finally attained by **Metal sphere B**.....
- (b) Complete the table by working out the overall charge on each object. Show your calculations. State whether the object is positively charged, negatively charged or neutral and why. (5 marks)

Object	Overall charge	Why is it positive, negative or neutral?
		
		
		

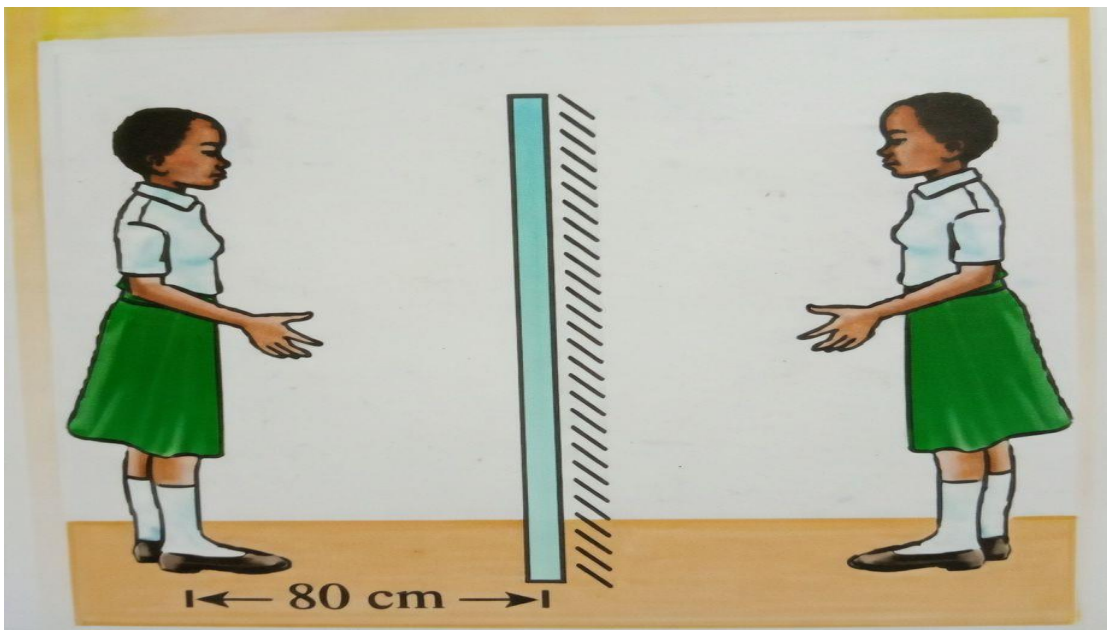
7. (a) In a certain primary school, a teacher demonstrated how magnets work by giving students different objects like a **nail, plastic ruler, coin, wooden pencil, and paper clip**, along with a bar magnet. The students were asked to identify objects that were attracted to the magnet and those which are not. **(2 marks @)**

- Why could some objects be attracted to the magnet and others not?
- Which of the objects could be attracted by the magnet? What are these characteristics?

(b) A student wants to turn an iron nail into a temporary magnet to pick up small pins. What should the student do to magnetise the nail, and how will the student know it has become magnetic?. **(4 marks)**

(c) State the basic law of magnetism. **(2 marks)**

8. A girl in figure below stands 80 cm away from the plane mirror. If the girl move 20 cm towards the mirror, what is the distance between the girl and her image? Give reasons for your answer **(10 Marks)**



9. (a) What do you understand by the term physics **(2 Marks)**

(b) Why do we study physics? (Four points) **(2 Marks@)**

SECTION C (15 Marks)

(Answer question 10)

10. (a) An electrical circuit in a domestic house is protected by a 6A fuse. The circuit is connected to the 240V mains. The following appliances in a table below are connected to the circuit

Appliance	Bulb 1	Bulb 2	TV	Heater	Iron
Power rating	100	75	300	1500	900

List several groups of this appliances that could be turned ON at the same time without blowing the fuse. Justify your answer. **(3 marks)**

(b) Draw a simple electric circuit from the following information, “connect a switch K, a rheostat Rh, a standard resistor R and ammeter A in series to a dry cell E, then connect a voltmeter V parallel to the resistor R”
(4 Marks)

(c) Two resistors $2\ \Omega$ and $4\ \Omega$ are connected in series to a 3 Volts battery.
Calculate the current flowing in the circuit. **(4 Marks)**

- (d) Determine the current reading on the ammeter in the circuit shown on the diagram below. (4 marks)

