

**THE PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
FORM ONE OPENING TEST APRIL
PHYSICS**

TIME 2:30 HRS

Year 2024

INSTRUCTIONS

1. This paper consist of section A, B and C with total of ten (10) questions
2. Answer all questions
3. Section A carries 15 marks, section B 70 marks and section C caries 15 marks
4. Where necessary the following constants may be used
 - Acceleration due to gravity, $g = 10 \frac{N}{Kg}$
 - Density of water $= \frac{1g}{cm^3}$ or $\frac{1000kg}{m^3}$
 - Pie, $\pi = 3.14$

SECTION A (15 Marks)

Answer **All** questions in this section

1. For each of the items (i) – (ii), choose the correct answer among the given alternatives and write its letter

i. Msaki wanted to measure the volume of the stone with the irregular shape. Which of the following pairs of instruments will you recommend him to use?

- (a) Measuring cylinder and meter ruler
- (b) Measuring cylinder and overflow can
- (c) Meter ruler and overflow can
- (d) Meter ruler and overflow can

ii. Which of the following groups represent forces?

- (a) Acceleration, energy and light
- (b) Energy, heat and upthrust
- (c) Friction, gravity and upthrust
- (d) Gravity, Light and velocity

iii. A plane mirror always forms:

- (a) Inverted virtual image
- (b) Magnified lateral image
- (c) Real lateral image
- (d) Virtual lateral image

iv. First aid is an immediate assistance or care given to a sick person or an accident victim before getting:-

- (a) Help from nearby people
- (b) Professional medical help
- (c) Relatives and friends assistance
- (d) Traditional medical care

v. When reading the volume of water in burette one need to look at the:

- (a) Highest point of the meniscus
- (b) Lowest point of the meniscus
- (c) Mid-point of the highest meniscus
- (d) Mid-point of lowest meniscus

vi. Which of the following is true about atmospheric pressure?

- (a) Decrease as one moves above the sea level
- (b) Increases as one moves above the sea level
- (c) Is greater than one internal body pressure
- (d) Is higher on the moon than on the earth

vii. Motor vehicle tyres are made up of grooved rubber in order to:-

- (a) Decrease speed of the vehicle on the road for safety purposes
- (b) Decrease stability of the tyre on the road
- (c) Increase friction between tyres and the road for safety braking
- (d) Increase speed of the vehicle on the road

viii. Which of the following group of instruments is used to measure the basic fundamental quantities?

- (a) Beam balance, stop watch and Vernier Calliper

- (b) Chemical balance, stop watch and measuring cylinder
- (c) Measuring cylinder, beam balance and meter ruler
- (d) Spring balance, stop watch and micrometer screw gauge

ix. Which of the following is a property of solid state?

- (a) Inter-particles distance is large
- (b) Particles are closely packed together
- (c) Particles are not closely packed together
- (d) Particles move randomly

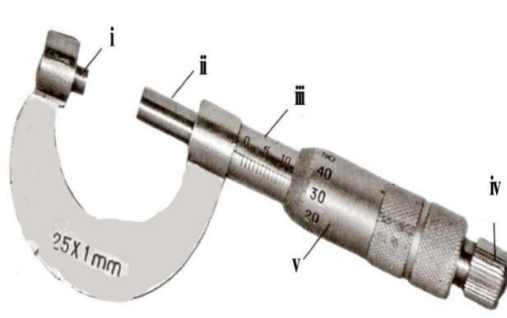
x. If a student get an electric shock and fall down unconscious in a physics laboratory which of the following would you do first to help the victim

- (a) Administer breathing exercise
- (b) Call medical doctor immediately
- (c) Call other students to surround the victim
- (d) Call a physics teacher to give the victim medicine

ANSWERS

I	II	III	IV	V	VI	VII	VIII	IX	X

2. Match the item in Column A against its corresponding item from column B by writing the correct response in the answer column provided.

COLUMN A	COLUMN B
	A. Sleeve (with main scale) B. Ratchet knob C. Frame D. Anvil E. Thimble (with rotation Vernier scale division) F. Depth probe G. Inside jaws H. Spindle

ANSWERS

I	II	III	IV	V

SECTION B (70 Marks)

Answer **ALL** questions in this section

3. (a) What is the importance of mathematics in physics?

(b) Your classmate has an urgent message to relay to his parents. If the message were to appear in writing, which methods would you advice him to use

- i. _____
- ii. _____
- iii. _____
- iv. _____

4. (a) Explain basic principles for fire prevention.

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____
- vi. _____

(b) Assume you're in the laboratory and your fellow student asks you to help him on how to operate portable fire extinguisher. How can you help him

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____

5. (a) Give out the difference between vector and scalar.

(b) Explain seven (7) steps that can be used to read Vernier Calliper

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____
- vi. _____
- vii. _____

6. In an experiment to determine the relative density of liquid X. Form one physics students obtained the following results after various measurements.

Mass of an empty relative density of a bottle = 15g

Mass of bottle + liquid X = 35g

Mass of bottle + water = 40g

Volume of a bottle = 25cm^3

Calculate

(a) The density of water in kg/m^3

(b) The density of liquid X in kg/m^3

(c) The relative density of liquid X

7. (a) Why the stem of the hydrometer is made thin?

(b) The same cork is floated on mercury and water in turn. How are

(i) The volume and

(ii) The weight of the liquid X displaced in each case related?

8. (a) Describe briefly two quite different physical phenomena which indicate that liquid surface appear to be in state of tension.

(b) Discuss briefly two pieces of evidence which indicate that there are attractive forces between molecules

9. (a) With the aid of the correct formula state how pressure in liquid depends on:

i. The depth of the liquid

ii. The density of the liquid

(b) What do you understand by the principle of transmission of pressure in fluids. State two practical application of this principle?

SECTION C (15 Marks)

Answer question number **ten (10)** in this section

10. (a) State the law which is applicable in the conservation of 'ability to do work'

(b) The first stage rocket motors of Saturn 5 burnt fuel at the rate of 13600kg per second. The work done by the pump to drive the fuel into the combustion chamber was the same as that necessary to lift the fuel through 1680m. What power needed to do this?