Candidate's Examination Number: _____

TANZANIA HEADS OF ISLAMIC SCHOOLS COUNCIL

FORM TWO INTER ISLAMIC MOCK EXAMINATION

PHYSICS

031

TIME:2:30 HOURS **Tuesday, 25th August 2020 a.m.**

Instructions

1. This paper consists of sections A, B and C with a total of ten (10) questions.
2. Answer all questions.
3. All answers must be written in the spaces provided.
4. All writings must be in blue or black ink EXCEPT drawings which must be in pencil.
5. Calculators, cellular phones and any unauthorized materials are not allowed in the examination room.
6. Write Your Examination Number on the top right of every page.
7. You may use the following constants in your calculations:
   (i) Density of water = $1.0g/cm^3$ or $1000kg/m^3$
   (ii) Acceleration due to gravity = $10m/s^2$.

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	EXAMINER'S INITIALS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
CHECKER'S INITIALS		

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SECTION A: (30 Marks)

Answer **all** questions in this section

1. Write the letter of the correct answer in the box provided for each of the items:

(i) The area under velocity time graph represents:

A. Speed
B. Velocity
C. Distance
D. Displacement.

(ii) Action and reaction are equal but acting in opposite direction represents:

A. Newton's first law of motion
B. Newton's second law of motion
C. Newton's third law of motion
D. Both A and C are correct answers.

(iii) Force is:

A. A push or pull
B. Product of mass and velocity
C. Product of mass and acceleration
D. Both A and C are correct answers.

(iv) Swelling of soaked beans in water is demonstration of:

A. Capillarity
B. Diffusion
C. Osmosis
D. Viscosity.

(v) The surest way of testing charge is:

A. Induction
B. Attraction
C. Repulsion
D. Stroking

(vi) An instrument which is used to observe objects around obstacles is called:

A. Microscope
B. Periscope
C. Plane glass
D. Telescope

(vii) Ohm is the SI unit of:

A. Conductance
B. Resistance
C. Electric potential
D. Potential difference

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(viii) One of the following is not pair of force:
A. Attraction and repulsion
B. Gravity and diffusion
C. Torsion and gravity
D. Upthrust and weight.

(ix) A victim of electric shock is held by:
A. Artificial respiration
B. Drinking enough water
C. Having bed rest
D. Being rushed to hospital.

(x) The sun is an example of a luminous body because it___
A. Is a big star
B. Is made by God
C. Produces its own light
D. Reflects light from the earth.

(xi) A smell of rotten body can be felt through the process of:
A. Diffusion
B. Evaporation
C. Osmosis
D. Transpiration.

(xii) The following are application of magnetism in daily life EXCEPT:
A. Banks make use of magnetic ink or cheques
B. Flour is passed near a magnet before being packed
C. Magnets are used to separate sand from glass
D. VHS tapes are manufactured as a result of magnetism.

(xiii) An object with low centre of gravity and wide base is:
A. Neutral
B. Stable
C. Equilibrium
D. Unstable.

(xiv) Penumbra is:
A. Light shadow
B. Partial shadow
C. Moon
D. Total shadow.

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(xv) Pressure in liquid contained in a vessel depends on:
A. Density of a container
B. Mass of the liquid
C. Surface area
D. Depth of the container.

(xvi) When a bus is moving with constant velocity then its acceleration is:
A. Constant
B. Zero
C. Minimum
D. Maximum.

(xvii) Best test for magnetized materials is:
A. Friction
B. Attraction
C. Repulsion
D. Heating.

(xviii) The SI unit of electric charge is:
A. Ampere
B. Coulombs
C. Ohm
D. Second.

(xix) The material which allow electricity and heat to pass freely are termed as:
A. Conductors
B. Insulator
C. Semiconductors
D. Semi insulator.

(xx) Which of the following groups of instruments is used to measure the basic fundamental quantities?
A. Beam balance, stopwatch and Vernier caliper
B. Chemical change, stopwatch and measuring cylinder
C. Measuring cylinder, beam balance and metre rule
D. Spring balance, stopwatch and micrometer screw gauge.

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2. Match each item in list A with the correct item in list B by writing a letter of a correct item below the number of a corresponding item in list A.

LIST A		LIST B
(i)	High centre of gravity	A. Stable
(ii)	Centre of gravity	B. A point where amount of substance act
(iii)	Centre of mass	C. Two similar objects
(iv)	Couple	D. Action of the centre of gravity to increase the speed
(v)	Bending forward when running	E. Unstable
		F. Two opposing forces
		G. A point where the weight seem to act
		H. To avoid falling when running
		I. Amount of substance a body contains

Answers:

LIST A	(i)	(ii)	(iii)	(iv)	(v)
LIST B					

3. Complete each of the following statements by writing the correct answer in the space provided:
   (i) The quantity of space that an object occupies is known as _____
   (ii) Occur when a body's rate of change of displacement is constant _____
   (iii) A physical quantity measured by using thermometer is referred to as _____
   (iv) Causes an object to rotate or turn about the fixed point _____
   (v) Angle between the geographical north and the magnetic north is called _____

SECTION B: (50 Marks)

Answer **all** questions in this section

4. (a) (i) Archimedes' principle states that
_____
_____

(ii) Law of floatation states that _____
_____

(b) (i) Upthrust is _____
_____

(ii) Apparent weight is _____
_____

(iii) Apparent loss in weight is _____
_____

(iv) Real weight is _____

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4. (c) A body has weight of 12N in air. When it is immersed in water its weight reduced by 4N. Calculate:

(i) Apparent weight

_____

_____

(ii) Relative density of the body

_____

_____

(iii) Density of the body

_____

_____

5. (a) Pressure is

_____

_____

(b) Pascal Principle states that

_____

_____

(c) Why it is easier to cut meat by using sharp knife edge?

_____

_____

_____

(d) A rectangular object whose dimensions are 1.4m by 0.1m by 0.2m has a density of 200kg/m^3. Calculate their:

(i) Minimum pressure when placed on the table

(ii) Maximum pressure when placed on the table

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6. (a) Three characteristics of image formed by plane mirrors are:
   (i) _____
   (ii) _____
   (iii) _____

   (b) The laws of reflections are:
   (i) _____
   (ii) _____

   (c) (i) 5 images are formed by two plane mirrors. Calculate the angle between two mirrors.
   (ii) How many images are formed when the two plane mirrors are set parallel to each other?

7. (a) The law of conservation of energy states that
   _____
   _____
   _____

   (b) (i) Power is _____
   (ii) Kinetic energy is _____
   (iii) Potential energy is _____
   (iv) Work done is _____

   (c) The body has mass of 20kg. It is moving with a velocity of 4 m/s.
   Calculate the kinetic energy of the body.
   _____
   _____

   (d) An object of 100kg is lifted to a height of 5m above the ground in 3 seconds.
   Calculate:
   (i) Work done
   (ii) Power

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8. (a) The two conditions for a body to be in equilibrium are:
   (i) _____
   (ii) _____

   (b) (i) Centre of mass is _____
   (ii) Centre of gravity is _____

   (c) A uniform metre rule is balanced horizontally on a knife edge placed 5cm from B with a mass of 60g at B. Find the mass of the ruler.

SECTION C: (20 Marks)

Answer **all** questions in this section

9. (a) Define the following terms:
   (i) Simple machine
   _____
   _____

   (ii) Mechanical advantage
   _____
   _____

   (iii) Velocity ratio
   _____
   _____

   (iv) Efficiency of machine
   _____
   _____

   (b) The load of 600N moved a distance of 4cm when lifted by an effort 300N when moved a distance of 10cm. Calculate:
   (i) Mechanical advantage
   _____
   _____

   (ii) Velocity ratio
   _____
   _____

   (iii) Efficiency of machine
   _____
   _____

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(c) Mention the factors which affect the efficiency of machine

_____

_____

_____

_____

_____

_____

10. (a) Define the following terms:

(i) Current

_____

_____

(ii) Potential difference

_____

_____

(iii) Resistance

_____

_____

(b) State Ohms law

_____

_____

_____

(c) Two resistors of resistance 4Ω and 6Ω are arranged in:

(i) Parallel

(ii) Series

Calculate the total current flowing if they are connected in a circuit with potential difference of 40Volts in each case.

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