Candidate's Examination Number

SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM THREE ENTRANCE EXAMINATION

042

PHYSICS

TIME: 2:30 Hours

THURSDAY 30TH NOVEMBER, 2017 a.m

INSTRUCTIONS TO CANDIDATES

1. This paper consists of THREE (3) sections A, B and C.
2. Answer ALL questions in section A and B; and any TWO (2) in section C. Question NINE (9) is compulsory.
3. Write your examination number on each page.
4. Write your answers in the space provided.
5. Cellular phones are not allowed in the examination room
6. Where necessary the following constant may be used.
   i) Acceleration due to gravity, $g=10m/s^2$ ii) Pie, $\pi = 3.14$

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	MARKS	SIGNATURE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10		
11.		
TOTAL		

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SECTION A: (30 Marks)

Answer ALL questions in this section

1. Write the letter of the most correct answer in the box below.

i) A car moving at a speed of 30m/s is brought to rest in 10 seconds, retardation of the car is

A. $1m/s^2$ B. $300m/s^2$ C. 3m/s D. 20m/s

ii) For moving body from rest or for stopping from motion, we need

A. force B. mass C. time D. direction

iii) The value of acceleration due to gravity

A. same everywhere B. $8.9m/s^2$

C. change from place to place D. change at night

iv) A body at rest can have

A. speed B. velocity C. momentum D. energy

v) Medium through which light cannot pass is called

A. transparent B. opaque C. translucent D. alloy

vi) Electric current is produced by flow of

A. electrons B. protons C. neutrons D. nucleons

vii) Energy due to motion

A. Potential energy B. Thermal energy

C. Kinetic energy D. Nuclear energy

viii) The length of 6.4m is equal to

A. 64cm B. 640cm C. 6400cm D. 0.64cm

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ix) The turning effect of force about a point

A. Archimedes principle B. centre of gravity

C. principle of moment D. moment of force

x) A lever which has its fulcrum between the load and effort is called

A. first class B. no class C. third class D. second class

ANSWERS

i	ii	iii	iv	v	vi	vii	viii	ix	x

2. Match each item in **LIST A** with a correct response in **LIST B** by writing its letter in the table below.

LIST A	LIST B
i) Geothermal energy	A. Falling of ocean water
ii) Renewable energy	B. Inexhaustible
iii) Wind energy	C. Energy from the sun
iv) Low tide	D. Energy from the fire wood
v) Water energy	E. Energy from underground hot rock
vi) Nuclear energy	F. Energy from fossils
vii) Non renewable Energy	G. Energy from batteries
viii) Solar energy	H. Energy from the nucleus
ix) Solar cell	I. Air current energy
x) High tide	J. Hydroelectric energy
	K. Energy from the coal
	L. Exhausted
	M. Device which harnesses solar energy
	N. Rising of ocean water
	O. Energy from charcoal

ANSWERS

LIST A	i	ii	iii	iv	v	vi	vii	viii	ix	x
LIST B										

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3. Fill the correct answer in the blank spaces provided.

i) The tendency of liquid to rise in narrow tubes or to be drawn into a small opening is _____.

ii) The people who study and work professionally in the field of physics are called _____.

iii) Mass of a body has the _____ value at all places.

iv) Force of attraction on a body toward centre of the earth is called _____.

v) A moving body posses _____ energy.

iv) The _____ about the point is equal to the sum of _____ about the same point.

vii) Light can pass wholly through _____ medium.

viii) A body falling on the ground, while reaching the ground it gains _____ energy.

ix) Current electricity is formed when charges _____ in a conductor.

x) Work is a _____ quantity.

SECTION B: (50 Marks)

Answer ALL questions in this section

4. a) i) State the factors that affect the stability of a body.

_____

_____

_____

_____

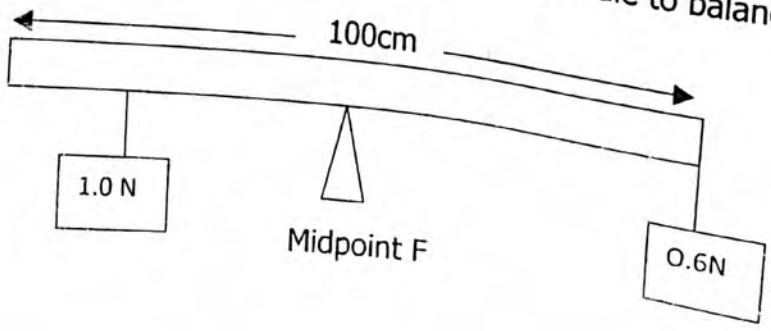
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ii) Outline three (3) types of equilibrium.

b) Explain briefly why luggage compartments are placed at the bottom of th bus.

c) A meter rule (100cm) is pivoted at midpoint. A 0.6N weight is suspended from one end as shown in the figure below . How far from the other end must 1.0N weight be suspended for the meter rule to balance?



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5. a) i) State the law of polarity

ii) Use a clear diagram to illustrate the law of polarity.

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b) By using diagram, briefly explain how neutral point can be formed.

c) Outline three (3) applications of the earth magnetic field.

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6. a) Distinguish the following terms.

i) Cohesion and adhesion

ii) Elastic material and plastic material

b) Outline two (2) applications of diffusion.

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c) ... object with a mass of 5000g hung from the spring.

How far (in meter) would it stretch? (Given force constant of k=25).

7. a) i) State ohm's law.

ii) What factors do the resistance of the conductors depend on?

b) i) Will the current flow more easily through thick or thin wire of the same material when connected to the same source?

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i) Give a reason of your answer.

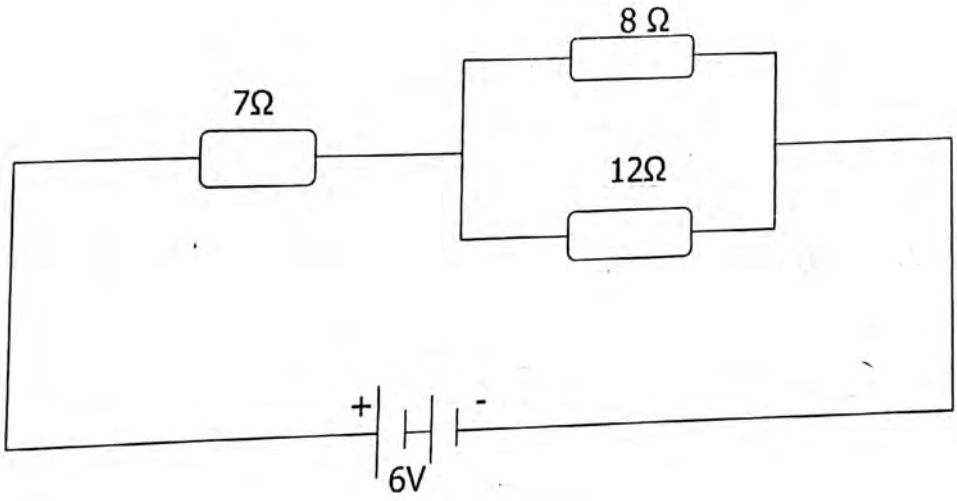
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_____

_____

_____

c) In circuit diagram given below,



Find

i) Total resistance of the circuit

_____

_____

_____

_____

ii) Total current flowing in the circuit

_____

_____

_____

_____

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8. a) Define the following terms.

i) Clinical thermometer

ii) Six's thermometer

b) List down two (2) precautions during the use of clinical thermometer.

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c) Convert the following units of Temperature

i) 58°C to °F

ii) 100°C into °F

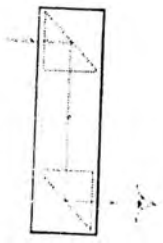
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SECTION C: (20 Marks)

Answer **ANY TWO (2)** questions in this section. Question 9 is **COMPULSORY**

The question has two (2) items (9a) and (9b). Answer either item (9a) or (9b)

9. a) Fill in the gaps with the correct response

	NAME OF THE DEVICE	SKETCH	USES	PHYSICAL EFFECT/PRINCIPLE
a	Rheostat			
b				
c	Simple pendulum			
d				
e	Plane mirror			

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b) In the experiment to determine the density of the materials of one hundred shilling coins, the following results were obtained:

- diameter (d) of the coin = 2.42 cm
- thickness (t) of the coin = 0.22 cm

The table of the results shown below

Number of coins, n	2	5	8	11	14
Mass, m of the coins (g)	15	45	70	104	125

i) Plot a graph of mass of the coin (vertical axis) against number (n) of coins (horizontal axis) on the graph paper.

ii) Determine the slope of the graph.

iii) Find the density (D) of the material of the coins where by $D = \frac{4S}{\pi d^2 t}$

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10 a) State Newton's second law of motion.

b) Explain four (4) important applications of impulse (Newton's second law of motion) in our daily life.

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11. a) Define the following terms

i) Pressure

ii) Thrust

b) Explain four (4) situations in which pressure is applied.

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