PHYSICS EXAMINATION

CLASS: SENIOR TWO

MUHANGA District

INSTRUCTIONS:

1. Read and understand all instruction before answering

2. This paper consists of THREE sections: A, B and C.

- **Section A: Attempt all questions. (55marks)**
- **Section B: Attempt only three chosen questions. (30marks)**
- **Section C: Compulsory (15 marks)**

3. Erasing answers is strictly prohibited

4. For multiple choice questions, write a letter corresponding to answer, for matching questions , match using number with corresponding letter.

SECTION A: ANSWER ALL QUESTIONS (55 MARKS)

Choose the correct answer for the following: (30 Marks) *(2 marks each)*

1.A zero error is a type of:
A. Random error B. Systematic error C. Personal error
D. Percentage error

2.The slope of a distance–time graph represents:
A. Acceleration B. Speed C. Force D. Energy

3.Friction acts:
A. In the direction of motion B. Opposite to motion C. Upwards
D. Downwards

4.The SI unit of density is:
A. kg B. Pa C. kg/m^3 D. N

5.Pressure is calculated by:
A. Force × Area B. Force / Area C. Area / Force D. Mass × gravity

6.Liquid pressure increases with:
A. Temperature B. Depth C. Shape D. Area

7.*A* manometer is used to measure:
A. Atmospheric pressure B. Gas pressure C. Density D. Force

8.P*ascal*'**s** principle is applied in:
A. Hydraulic press B. Thermometer C. Barometer
D. Spring balance

9.According to Archimedes' principle, upthrust equals:
A. Weight of displaced fluid B. Volume of object C. Mass of object
D. Density of object

10. Work is done when:
A. Force causes displacement B. Object is at rest C. Time increases
D. Speed is zero

11. The SI unit of power is:
A. Joule B. Watt C. Newton D. Pascal

12.Mechanical energy is equal to:
A. KE only B. PE only C. KE + PE D. Heat energy

13. In an isolated system, total mechanical energy:
A. Increases B. Decreases C. Remains constant
D. Disappears

14.Friction can be reduced by:
A. Lubrication B. Rough surfaces C. Increasing load
D. Increasing area

15.Atmospheric pressure is measured by a:
A. Ammeter B. Barometer C. Voltmeter D. Hydrometer

16. Complete the Statements (5 Marks)

(1 mark each)
A. The SI unit of work is _____.
B. Pressure in liquids is given by _____.
C. Energy of motion is called _____ energy.

D .Total mechanical energy equals _____ plus _____.

E. The rate of doing work is called _____.

17. Answer by True or False (5 Marks) *(1 mark each)*

A. Friction is always harmful.
B. Pressure increases with depth in liquids.
C. Energy can be destroyed in an isolated system.
D. A hydraulic jack works using Pascal's principle.
E. Density equals mass divided by volume.

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18. Complete the Statements (5 Marks) **(1***mark each)*

A. The SI unit of work is _____.

B. Pressure in liquids is given by _____.

C., Energy of motion is called _____ energy.

D. Total mechanical energy equals _____ plus _____.

E. The rate of doing work is called _____.

19. Match each **term** in column A with its appropriate **description** in column B. **/5marks**

Term	**Description**
a) The formula for pressure in a fluid	i)Pressure (P) = Force (F) / Area (A)
b) The formula for pressure in solid	ii) The ratio of a substance's mass to its volume
c)Density	iii) Pressure P = ρ g h (ρ = density, g = acceleration due to gravity, h = depth)

d)Aneroid barometer	iv)The ratio of the density of an object with respect to the density of water
e) Relative density	v)It measures atmospheric pressure by balancing the pressure of a mercury column against the atmospheric pressure

20. A vehicle having rectilinear motion is moving with a velocity of 10 m/s and accelerates uniformly to 15 m/s over a distance of 125 m.

a) What is its acceleration?

i)1 m/s^2 ii)1.5 m/s^2 iii)0.5 m/s^2 iv) 0.04 m/s^2 **(1 marks)**

b) What will be the time taken to cover this distance?

i)5 s ii)15 s iii)20 s iv) 10 s (**1 marks)**

22. Complete the following table**/3marks**

Numbers	Significant figures
5001.000	
0.0050830	
450000	

SECTION B: ATTEMPT ANY THREE QUESTIONS /30marks

Q23. I) State Pascal's principle**/2marks**

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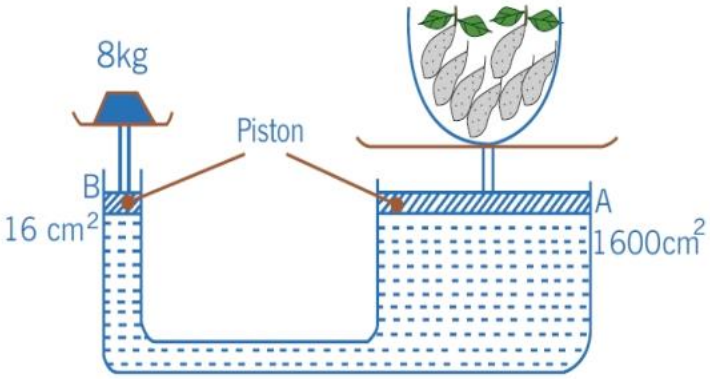
II) The following figure shows a hydraulic weight bridge which works on the principle of Pascal's law.



a)What is the pressure at B? **/1mark**

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b) What is the pressure at A? **/1mark**

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c) What is the weight of the vegetable on the large piston A if the weight bridge is in equilibrium? **/2marks**

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d).Copy and fill in the blanks the missing words:
[4marks]

Pressure tells us how concentrated a ---------- is. It is measured in ---------- or ----------, and is calculated using the equation: p = -------

A force of 12N acting over an area of $2m^2$ causes a pressure of ----------. If the area were less, the pressure would be ----------. The dimensions of velocity are ----------. The dimensions of pressure are ----------.

24. . (a) what is meant by a uniform velocity ***(1mark)***

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(b) Sketch of a body moving with a uniform velocity. Label distance on y axis and time on x – axis and explain how is the graph? ***(2marks)***

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(c) The initial velocity of a moving body is 10m/s in 5s, the velocity of the body reaches 30m/s. the body maintain the velocity for 45min

(i) Calculate the acceleration of this body ***(3marks)***

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(ii) Calculate the distance does the body travel ***(4marks)***

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Q25. a) With the aid of a diagram show that pressure in water increases with depth (***2marks)***

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(b) Calculate the pressure of waster exert at 8m below the surface of the water in lake. Assume the density of water $\rho = 1000\frac{kg}{m^3}$ and g= 10N/kg ***(2marks)***

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c) Explain how pressure varies with altitude ***(2marks)***

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d) A rectangular aluminum solid block of density 2700kg/m^3 has dimension of 40cm x 12cm x 6cm. The block rest on a horizontal flat. Calculate

(i) The minimum pressure ***(2marks)***

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(ii) The maximum pressure it can exert ***(2marks)***

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26. (10MARKS)

). Given the table below, there are the measurements of the length of an object five times,

Measurement	Data set in cm
X_1	72
X_2	77
X_3	82
X_4	85
X_5	88

Use these measurements recorded in the data set.

a. The mean value for data set 1
b. The range
c. The uncertainty measurement
d. The uncertainty in the mean
e. The measured (reported) value

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SECTION C: this question is compulsory /15marks

Q27.The table below represents the variation of time with distance of moving body.

Distance(m)	0	8	16	24	32	40
Time(s)	0	2	4	6	8	10

a) Plot a distance -time graph (distance along Y-axis and time along X-axis) using the data in table above**. (9 marks**)

b) Show on the graph how you determine the gradient of the graph**. (2 marks**)

c) Calculate the gradient**. (3 marks)**

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d) What does this gradient represent? **(1 mark)**

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GOOD LUCK !!

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