ASK INTERGRATED TEACHERS' MOCK EXAMINATIONS BURREAU

AITEL EXAMINATION

Certificate of Education

END OF TERM II EXAMINATIONS 2023

S.3 PHYSICS

STUDENT'S NAME		STREAM		
		GROUP NAME		

INSTRUCTIONS

Attempt all questions in section A and any two from section B

Any additional question(s) answered will not be marked

FOR EXAMINERS' USE ONLY

Do not write in these boxes. The examiners will use them to keep a record of your marks

Questions		Marks
Section A		
Section B	No	
	No	
	No	
Total		

SECTION A

1. Two men went to buy a land and were made to tour two pieces of land A of dimensions 50m by 180m and land B of dimensions 100m by 100m. as a physics student with a valid explanation, advise the two men on which land to buy if the two pieces are of the same price.

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   ……

   ……..…(04mks)

2. (a) The Sun emits heat energy to the earth through space, state the mode of heat transfer from the Sun to the Earth.

   ……..……(01mrk)

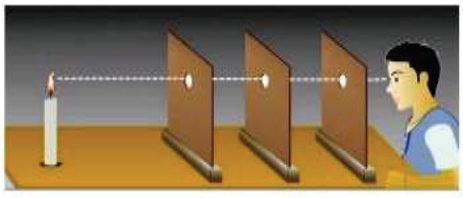
   (b) explain why a person near the calm conditions at night feels a cool breeze from the land.

   ……

   ……

   ……..……(03mrks)

3. A student set up an experiment as shown below.



   (a) What principle was the student investigating?

   ……...(01mrk)

   (b) Explain what is observed if one of the cardboard is slightly pushed off the line such that the holes are no longer in a straight line

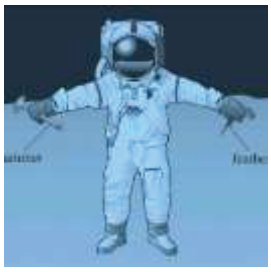
   ……

   …….. (02mrks)

(c) What conclusion can you make from 3(b) above.

……. (01mrk)

4. An astronaut has a mass of 65Kg on earth, where the acceleration due to gravity is $10m/s^2$



(a) Calculate the astronaut weight on earth.

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……. (02mrks)

(b) The astronaut a moon landing. On the moon, the gravitational strength is $1.6m/s^2$. Calculate the weight of the astronaut on the moon.

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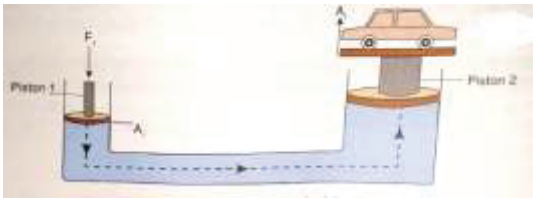
…….. (02mrks)

5. The Head teacher's vehicle got a mechanical break down and need to be lifted using a hydraulic press.



The piston of a hydraulic press has their area given as $3.0\times10^{-2}m^2$ and $2\times10^{2}m^2$ respectively. If a student pushes down a smaller piston with a force of 120N. what is the force that will be exerted on the vehicle.

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……. (04mrks)

A barber was given a curved mirror of focal length 30cm so that he could use it as shaving mirror in his saloon.

Identify the type of mirror given to the barber.

.....

Use a ray diagram to illustrate the use of the mirror as a shaving mirror. What are the properties of the image formed?

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The table below shows the velocity of a moving car at different times

Time (s)	0	2	4	6	8	10
Velocity (ms^{-1})	0	4	8	8	8	0

Draw a velocity –time graph (use the graph below and a convenient scale)

From the graph , calculate :

Average acceleration of the car in the first four seconds

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Acceleration of the car between the fourth and the eighth seconds.

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Acceleration of the car during the last two seconds in motion

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Total distance covered by the car .

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SECTION B:

6. Along Kamdini to Kampala highway, a vehicle of mass 1500Kg travelling at a velocity of 72Km/h towards Kampala collided with a stationary vehicle of mas 900Kg packed in kyriandongo town.

After collision, the two moved together at a constant velocity for 20 seconds. Calculate the;

(a) common velocity after the impact (03mrks)

(b) distance moved after the impact (03mrks)

(c) loss in kinetic energy after collision. (04mrks)

7. In an experiment to demonstrate the properties of the three major states of matter, these were compared based on shapes and volume, compressibility, rigid (fluid), fill container completely.

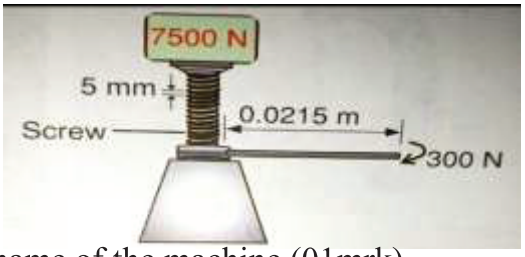
(a) Study the table below showing summary of observations and complete the behavior of each state in each property……. (06mks)

	Shape and volume	Compressibility	Rigid(liquid)	Fill container completely
Solids				
Liquids				
Gases				

(b) It was observed that solids are incompressible. Explain why a sponge is compressible and yet it is said to be a solid……... (02mks)

State any two properties of plasma as a state of matter…… (02mrks)

8. A mechanic in one of the garage used the machine below to lift a lorry of 7500N.



(a) Identify the name of the machine (01mrk)

(b) Determine the;

(i) Mechanical advantage (03mrks)

(ii) Velocity ratio (03mrks)

(iii) Efficiency of the machine (03mrks)

9. The students of S. 1 class were studying physics the chapter of forces and their physics teacher gave them research about forces and their effects. As they were searching they came across that s. I unit of force is Newton which was named after a scientist. As a learner of s. 3 you have selected by the teacher to present the laws which were stated by Sir Isaac Newton.

Task

Using relevant life examples state the all laws that were discovered by the Scientists
10marks……