KIYALA HIGH SCHOOL

END OF TERM ONE ASSESSMENT TEST - 2024

PHYSICS

S.4

1 Hours 30 minutes

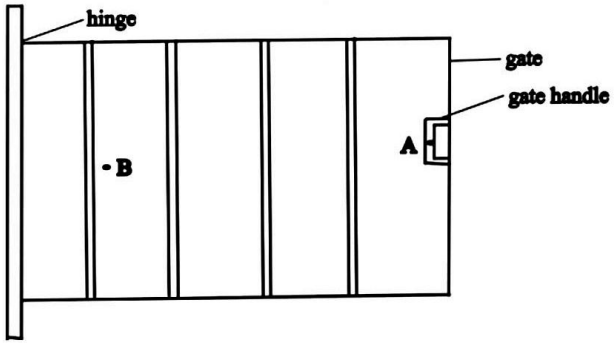
INSTRUCTIONS

- *This paper consists of two sections* **A** *and* **B**. *It has* **four** *examination items.*
- *Answer* **all** *the item from both sections,* **A and B**
- *Any additional item answered will not be* **scored**

SECTION A

Item 1

A trader at Arua park opens a wide gate from a point A and closes it from the end B as shown in the figure below



The trader realizes that opening the gate from point A is easy compared to closing the gate at point B

He continued to the shop but did not have a weighing balance. The trader used a uniform beam of mass 1.5 kg of length 1 meter to determine the mass of the remaining sugar. The beam balanced with the pivot at 70 cm and the sack of sugar at 90 cm. The trader later observed a bus being loaded at the base.

Task

a) Explain the trader's experience at the gate.

b) Help the trader determine the mass of sugar.

c) Why is it necessary to lad a bus at the base? Explain how a similar reason is applied in the design of racing cars.

Item 2

A heap of weed of mass 3 tonnes is moving towards the turbines at Jinja power station. A group of engineers used a machine operating at 20 kw for 5 minutes to remove the weed from the river and place it at the bank which is 15 meters above the river.

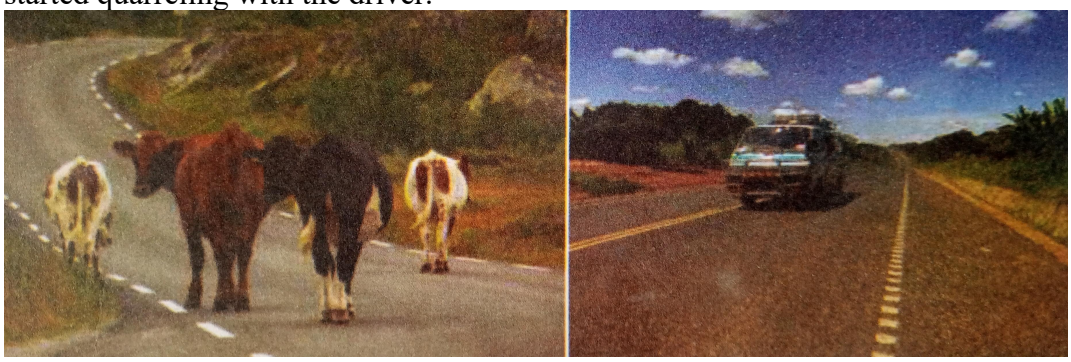
Task

Using the above data, describe the efficiency that the machine used to perform the task.

SECTION B

Item 3

Isaac was travelling from Kampala to Mbarara in a speeding taxi and on his way to Mbarara, the taxi driver noticed cows crossing the road and he suddenly applied the brakes for the car to stop and when the car stopped, the passengers in the car instead started quarreling with the driver.



Task

a) Explain why the passengers had to quarrel with the driver and as a physics student,write a statement to explain to the passengers that what happened was not the drivers fault explaining clearly what caused it.

b) Why do you think it was necessary for the driver to apply the brakes and explain how he would have avoided what happened to the passengers.

Item 4

In a certain beach, a group of people were touring the beach using an engine boat and in that group one of them did not want to wear a life jacket.

Task

As a student of physics, help this person to understand;

a) Why it is advised to wear a life jacket. Explain why and what makes it possible to save your life in case of an accident.

b) Two applications of archimede's principle.

c) How to determine the mass of the block, maximum pressure it exerts and minimum pressure it exerts when a wooden block that measures 20cm x 10cm x 5cm has a density of 0.8 gcm^{-3}

SUCCESS