**KIARA CITY HIGH SCHOOL BLESSED VICTORS SENIOR SCHOOL BUWALULA**

**END OF TERM II ASSESSMENT 2024**

**S2 PHYSICS**

**2 hours**

**Attempt all questions**

**Item 1**

A boy of mass 50 kg went to a play resort near the lake shores. He sat on one side of a see saw at a distance of 2m from its pivot. A girl of mass came sat on the opposite side of the see saw so that it balanced horizontally. The boy observed that it was very hot and the wind was blowing toward land, the cool resort cottages (semi houses) were roofed with grass instead of iron sheets and all the houses were painted white. Afterwards, he decided to enter the water in the lake and swim in order to cool himself. He was wearing a black short and a white shirt of the same material. After coming out of water, his short dried faster than the vest. He was surprised about all the above.

Task

As a student of physics:

(a) Find the distance from the pivot where the girl sat so that it is marked.

(b)Explain to the boy why:

(I) Wind was blowing from the lake toward the land.

(ii) The short dried faster than the vest.

(iii) Cottages were cool.

(iv) All houses were painted white.

**Item 2**

A new company has just been built next to your home, and while they have hired security guards, the security cameras they intended to buy are out of stock. At the moment, they were looking for a best tool that would enable them to view the wall and what is outside when they inside the perimeter fence. In addition, In addition, the company bought a pinhole camera of length 20mm and it it was used to view and object of height 2mm at a distance of 50mm though the size of it's hole was very big.

Task

As a physics learner,

(a) design and explain a simple instrument which can be used to view outside.

(b) What size of the image was formed on the screen by the pinhole camera and explain the effect of increasing the size of it's hole.

**Item 3**

The government of Uganda is trying to sensitise people who move on water to always move put on life jackets. The life jacket helps the person remain on top of water Incase the boat capsizes.One day, People were moving on a ship of total mass 4000kg which displaced 2m3 of water and it capsized. ( Density of water is 1000kgm-3)

Task

As a physics learner,

(a) explain how life jackets make a heavy person remain floating.

(b) with reasons, explain why the ship capsized.

(c) why do you think dam walls are made thicker at the bottom than at the top?

**Item 4**

There is a bridge in your village that was constructed using wood. Two vehicles have been crossing and it has now collapsed. The chairperson in charge of this village measured the temperature of the car tyre using un calibrated thermometer and he found out that the length of the mercury thread is 40cm. When he placed the thermometer in melting ice and steam, the length of the mercury thread was 20cm and 80cm respectively. The community members wants to construct a long lasting bridge.

Task

As a physics learner,

(a) Advise the community with reasons on the materials to use to build a long lasting bridge.

(b) Assist the chairperson to know the temperature of the car tyre.