**BRAIN TRUST COLLEGE KAWUMBA.**

**END OF TERM II ASSESSMENT 2024**

**Uganda Lower Secondary Curriculum Education**

**Senior Three**

PHYSICS

**Paper 1**

Theory

**Time:**

**INSTRUCTIONS TO LEARNERS:**

* This paper consists of **three** examination **Items**.
* Answer **all** examination **Items**.
* Each examination **item** has the same **scores**.
* Any additional item(**s**) answered will **not** be scored.
* All answers **must** be written in the booklets provided.

**Item One**

On a construction site a builder uses an electric lifter to transfer wet concrete mixture from the ground to a height of  on the building. When power went off and work has to continue, the builders get a rope, a cut jerry can plate with a handle of mass **1.5 kg** to lift to lift a maximum load of **20 kg** concrete mixture to the next floor. They hope to design a simple machine with the help of a grooved rim which enables them resume the work. Given velocity ratio **(V.R**) should be **4** and the rope has to be strong enough in order to support the work of more than .

**Task**

**As** a learner of physics,

1. Help the builders to design the machine and guide them on how it works.
2. Show whether the rope will withstand the load without breaking.
3. Suggest the possible ways to be used in order for the work to be done quickly with ease.

**Item Two**

Students from your secondary school visited the peak of mountain Rwenzori and when they reached the peak it was found to be very cold due to the snow and at the same juncture they met learners from a school from Kampala who were puzzled on how the peak of the mountain can be measured.

**Hint**; (the following materials were available at the tour site)

* length tube with one end closed
* jerry can of mercury
* rule and a retort
* Density of mercury
* Density of air
* Acceleration due to gravity,

**Task**

As a physics learner,

1. Write an essay on how you can help the primary learner measure the height, **H** of the peak.
2. Suppose the barometer read at the top peak from the sea level, help the primary learner determine exact height, **H** in km. (correct to 2dps)
3. Advise the learners on how to dress up when it comes to visit those places near the mountain peaks.

**Item Three**

The engineer of a certain construction site bought the following building materials such as 26 bags of cement, 20 pieces of iron sheet, 7 pieces of steel bars etc, the engineers claims that the above materials bought are of good quality and in that they will last for over 100 years if used in the construction. He added on that they were bought expensively and other workers at the site silently opposed his words as they silently said that the quality of materials don’t depend on its colors.

**Support material**

* 1 bag of cement(50 kg) costs
* **1** piece of iron sheet costs
* 1 piece of steel bar costs

**Task**

As a physics learner,

1. Help the site engineer and his fellow workers prove if the above building materials are of good quality.
2. Show whether was enough to purchase the above items.
3. Show whether a truck which can carry managed to carry the 26 bags of cement.
4. Advise the site engineer on how to construct a house foundation which is free from wet.

**END**