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PHYSICS

Paper 1

APRIL 2025

$2\frac{1}{2}$ hours

ST LEO VOCATIONAL SECONDARY SCHOOL-BUKOMMA

UGANDA CERTIFICATE OF EDUCATION

END OF TERM ONE ASSESSMENTS

S.2 PHYSICS

Paper 1

Theory

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

This paper consists of five examination items

Attempt only five items

SECTION A

Item one

A shop owner wants to monitor activities outside his shop without being seen. He needs a device that enables him to see around obstacles or over walls and also capture clear images of customers in his nearby salon.

Task:

- (a) Design a device that will enable the shop owner to see outside the shop and around obstacles

- (b) Advise the shop owner on forming 5 images in two mirrors of a customer in his nearby salon.

Item two.

Child X and child Y disagree about the angle of incidence and reflection in a plane mirror. Child X claims that the angle of incidence is equal to the angle of reflection.

Task;

- (a) Design a classroom experiment to settle the dispute.
(b) If Child X is 50cm from the plane mirror, how far is he in metres from his image?

Hint;

Plane mirror, soft board, optical pins, drawing pins and Mathematical set.

Item three

A family's electricity bill has expired, and they are without light. Using common house hold items, the family wants to produce light for the night but they don't know how they can produce it.

Task;

- (a) Help the family on what it can do to produce light for the night.
(b) State the precautions the family members should ensure while using the source of light
(c) How would you improve on the brightness of the light produced by the light source.

Hint

Household items include: paraffin, cotton pieces of clothes, empty glass jars

Item four

Blue and red teams are playing a tag of war. If each person in the blue team pulls with a force of 200N and the team has 5 people and each person in the red team pulls with a force of 100N and has 6 people.

Task;

- (a) By showing your working, identify the team that will win the game.
- (b) How many people should be added to the losing team so as to match with the strength of the winning team.

Item five

A water pipe is installed underground in a cold climate. During winter, the temperature drops below 0°C causing the rigid water pipes to burst.

Task;

- (a) Explain what causes the rigid water pipes to burst
- (b) Suggest a way of preventing the rigid water pipes from bursting
- (c) Explain how this behavior of water is useful.

Hint: A graph of volume against temperature appears as below

