

**RWENZORI REGION SESEMAT**  
**END OF YEAR ASSESSMENT 2024**  
**SUBJECT: PHYSICS (535/1)**

**CLASS: S2**

**TIME: 2 HOURS**

**INSTRUCTIONS**

1. This paper consist of two sections **A** and **B**. It has a total of **seven** items
2. Answer any **one** item in section **A** and Section B has two Parts I and II. Answer two items from part **I** and any one item from Part **II**  
In total answer four Items.  
Any additional item(s) will not be scored.

**Section A**

**Answer one item**

**Item one**

A Ugandan student got a scholarship to study in Canada. While there he got information that it will be totally dark during day time in some parts of Rwenzori region. He called back home at midday to alert his parents, the parents told him that they were already in bed and it was night time. These two occurrences bothered him so much why it was night in Uganda and day time in Canada, why it was going to be totally dark during day time only in Uganda.

As a learner physics help him to understand

- i) How it is possible for some place to experience total darkness during day time
- ii) How it can be night time in one place and day time in another place.

**Item two**

As student was complaining of a toothache and suspects it could be damaged. She went to a dentist to examine the tooth. The dentist asked the nursing aid to look for a curved mirror of radius of curvature of 20cm that would give the best magnification for examining the tooth. To achieve the best results, the nurse was advised to have the tooth positioned 5cm from the instrument.

**Hint:** The available curved mirrors were concave and convex of the same focal length

**Task:**

As a learner of physics advice the nurse

- i) Make the right choice of the optical instrument to be used
- ii) Using the graphical approach justify the choice of instruments
- iii) The right use of the remaining instrument

**Section B**  
**PART 1 (answer any two)**

**Items**

A woman of mass 65kg is carrying a basket of food items of 15kg from her garden. She climbed a hill of vertical height 80m and reached her home at the top of the hill in 20 minutes. On reaching home she was sweating and breathing heavily.

Hint: Acceleration due to gravity =  $10\text{ms}^{-2}$

**Task:**

As a learner of physics

- a) Explain what caused a change in the breathing rate and sweating
- b) Determine
  - (i) Her ability to do work
  - (ii) Her personal power developed.

**Item 4**

A group of tourists set off from the bottom of a mountain to climb up to the peak of the mountain. However on the peak of the mountain they all complained of difficulty in breathing and eventually experienced nose bleeding. All of the sudden everyone picked up a heavy jacket and put it on. On using a mercury barometer, a barometric height of 71cm was measured

**Hint:** Density of mercury  $13600\text{ kg m}^{-3}$

**Task**

Using your knowledge of physics, Explain why they;

- a) (i) Experienced difficulty in breathing and nose bleeding
- (ii) had to put on heavily jackets.
- b) What is the pressure at the peak of the mountain

**Item 5**

Mrs. Mwesige started a small scale shop in a trading to sell soft drinks packed in plastic and glass bottles. She uses a fridge to make them cold. One evening, she mixed all the products in

her fridge and left the fridge on; as she opened her fridge the following day most of the glass bottles were broken and others with cracks while the plastic bottle had expanded. She called her neighbours to help her understand what had happened but none of them could explain what had happened.

**Task**

As a learner of physics

- a) Help Mrs. Mwesige to understand what had happened
- b) Suggest ways how to avoid this from happening again to her

**PART 2: (Answer any one)**

**Item 6**

One Monday afternoon it rained heavily and a heavy thunder destroyed and split one of the tallest trees in the compound into pieces. On hearing the news, the parents in the community decided to take their children to other schools thinking that the school has been attacked by evil spirits. This forced the PTA chairperson to call a parents meeting to discuss this issue.

Using your knowledge of physics, help the chairperson with

- a) Information about what happened
- b) A suggestion of a device that can be used to avoid the re- occurrence of this event and how it works.

**Item 7**

A group of new students agreed to go to revise their books from the South field of the school. After long hours of revision they could not remember their direction back to the classroom

Looking around the room they saw a long un insulated copper wire, battery cells, switch, a long steel nail, piece of thread and retort stand

**Task**

Using your knowledge of physics help them:

- a) To come up with a device that can help them to find their way back to classroom
- b) On how they use this device to locate their classroom

**END**