

Candidate's Name:

Signature:

Random No.						Personal No.		

(Do not write your School/ Centre Name or Number anywhere on this Booklet.)

500/1
GENERAL
SCIENCE
Paper 1
2024
1 ½ hours



UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

GENERAL SCIENCE

Paper 1
Physics

1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **two** sections; **A** and **B**. It has **four** examination items.*

*Section **A** has **two** compulsory items. Answers to these items are to be written in the spaces provided.*

*Section **B** has **two** items. Answer **one** item from this section. Answers to these items **must** be written in the answer booklets provided.*

*Any additional item answered will **not** be scored.*

*Answer **three** items in all.*

SECTION A

Answer **all** the items in this section.

Item 1.

The local council chairperson discovered that his car engine could not start yet he had a party to attend later in the day. After checking the car, the chairperson discovered that the battery was completely discharged. A neighbour with a car whose battery was fully charged found the chairperson stranded but could not let the chairperson borrow her car. The neighbour instead suggested that the chairperson uses the fully charged battery to charge the discharged battery. Unfortunately, both of them were ignorant about how it could be done.

Task

- (a) As a student of general science, advise the chairperson on what to do to solve the problem.

- (b) Help the chairperson understand what should be done for a battery to retain its charge for a long time.

- (b) Help the neighbour to determine if the sound from the workshop has an effect on their hearing ability.

Hint: speed of sound in air = 330 ms^{-1} . Sound waves of frequency 20Hz - 20kHz are not harmful to human ears.

SECTION B

Answer only one item in this section.

Item 3.

The headteacher of a certain school intends to construct an underground water tank of dimensions 2 m by 4 m by 6 m to store water for use during the dry season. He has been advised to put into consideration the design of the tank that will contain 45000 litres of water and how the water from the tank will be supplied to the entire school community.

Task:

- (a) Propose ways in which the;
- (i) design of the tank can be made in order to withstand the weight of the water.
 - (ii) water from the tank will be supplied to the school community.
- (b) Help the headteacher determine if the proposed tank design will be enough to contain 45000 litres of water.

Item 4.

A worker in a certain mechanical workshop was assigned to make two gears for a simple machine by the supervisor. One of the gears labelled **X** was made to have 28 teeth. When gear **Y** was made, the effort of 5 N was applied to lift the load of 16 N through a distance of 8 m. This led to an increase in the temperature of the machine which reduced its output and lowered its efficiency to 80%. The supervisor was puzzled and demanded to know why the temperature of the machine increased, output reduced and the number of teeth on gear **Y**.

Task:

As a student of general science physics;

- (a) Help the supervisor to determine the number of teeth gear **Y** had.
- (b) Explain to the supervisor why there is a reduction in output and an increase in temperature.

SAMPLE PAPER