AITEL EXAMINATION

UGANDA CERTIFICATE OF LOWER CURRICULUM EDUCATION

PHYSICS DEPARTMENT

END OF YEAR ASSESSMENT

S.1

2HOURS

INSTRUCTIONS

-Attempt a maximum of four questions

-All questions take same marks

-Silent non programmable calculators maybe used

-Take Acceleration due to gravity g=10m/s^2

1.(a) **Context:** Your school usually has careers day at the end of every first month in first term of the academic year. You have been selected from your class to give a speech on that day about Physics and the related careers.

Task: Write a five-minute speech that you will deliver on that day. Make sure that your speech is attractive and can make someone feel challenged to takeup a career in Physics fields.[10marks]

(b) A Physics Laboratory is a place where Physics experiments are carried out and basically these experiments are carried out using different apparatus. State atleast five apparatus and giving what they are used to do. [10marks]

2. (a) A prominent trader in a local trading centre lost several of his mass/weighing stones. He was left with only three masses whose values were 0.5kg, 2kg and 3kg. State what he would do in order to measure 4.5kg of beans for his customer.[4marks]

(b) Describe an experiment you would carry out to determine the density of an irregular solid.[8marks]

(c) Convert the following to respective units

(i) $5.4m^3$ to ml. [4marks]

(ii) $6.5g/cm^3$ to kg/m^3 [4marks]

3. (a) What do you understand by "matter".[2marks]

(b) With a diagrammatic illustration state at least two properties of each state of matter.

(i) Solids[4marks]

(ii) Liquids[4marks]

(iii) Gases[4marks]

(c) Explain

(i) Why when black ink is put in colourless water, it can spread in all parts of the bottle.[3marks]

(ii) Whether change in temperature would affect the rate of spread of black ink in water.[3marks]

4. (a) What do you understand by a force and give one example of a force.[2marks]

(b)(i) Two perpendicular forces XN and 3N act on a body and the resultant force is 5N. Find the possible values of force X.[3marks]

(ii) Find the weight of the body if its mass is 80kg.[2marks]

(iii) Find the mass of a ball whose weight is 100N.[3marks]

(c) **Context:** In Ngoma village, a certain old man has been living in darkness in his hut. You felt pity for him. One evening you decided to visit him and

found that all he had in his hut were an empty tin, paraffin, a cotton cloth, and a razor blade for cutting the cloth and a box of materials.

Task: Develop guidelines the old man should follow to use the available materials at his home to solve the problem of darkness in his hut.[10marks]

5. (a) Why is mercury preferred over water as a thermometric liquid.[4marks]

(b)(i) When a Celsius thermometer is inserted in a boiling liquid, the mercury thread rises above the lower fixed point by 19.5cm. Find the temperature of the boiling liquid if the fundamental interval is 25cm.[3marks]

(ii) The length of the mercury column in a non-calibrated mercury thermometer is 2cm when its bulb is immersed in melting ice and 20cm when the bulb is in steam above boiling water. What would the temperature be if the length of the mercury column is 11cm?[4marks]

(c) Temperature can be measured either in degrees celcius or degrees Fahrenheit or Kelvin. Convert the following the required Units.

(i) 5°C to $^{\circ}$F[3marks]

(ii) 32°F to $^{\circ}$C[3marks]

(ii) 41°F to K[3marks]

6. (a)(i)Heat is transferred from one place to another by either *conduction*, *convection* or *radiation*. What do you you understand by these aforementioned, bold and italicized terms. [3marks]

(ii) States of matter expand on heating, Gases expand more than liquids, while liquids expand more than solids, explain why is it so.[3marks]

(b) Describe an experiment to show that water is a poor conductor of heat.[8marks]

(c) With aid of a well labelled diagram, explain how a vacuum flask minimizes heat loss.[6marks]

END