NAME:_____STREAM:_____ SIGN:_____

ST. ELIZA SECONDARY SCHOOL - NJERU

END OF YEAR 2022 ASSESSMENT

S.1 PHYSICS

2 HOURS

Instructions to learners:

- Answer all the questions in section A .
- Attempt any one question from section B

SECTION A:

1. In an experiment to determine the density of wooden solid block, a learner was provided with the following apparatus:

a) What is the meaning of the term density?

_____

_____ *1mrk*

b) What is the importance of knowing the density of substances?

_____

_____ *1mrk*

c) i) Describe how you can use the apparatus above to measure the density of the solid._____

_____

_____

_____

_____

_____

_____ *4mks*

ii) What would be its relative density if it had a density of 800kgm^{-3}?

_____

_____ *2mks*

d) Explain why a ship though is made of steel denser than water is able to float on water.

_____

_____

_____ *2mks*

2. Potassium permanganate was put in a beaker of water as shown below:

a) Name the scientific phenomenon being demonstrated in the experiment.

_____

b) Explain what happens after sometime.

_____

_____ *2mks*

c) What would happen if the set-up was heated?

_____ *1mrk*

d) Identify any two effects in our daily lives that are applications of the above phenomenon mentioned in (a) above.

_____

_____ *2mks*

3. a) A mountain climber of mass 42kg measured his mass and weight at the bottom of a mountain on reaching the top of the mountain he measured again but discovered that his mass was the same but his weight was less.

i) With clear reasons explain why his weight was less at the mountain top.

_____

_____

_____

_____ *2mks*

ii) What is his weight at the bottom where acceleration due to gravity is 10N/kg?

_____

_____ *2mks*

iii) How is mass of a body different from weight?

_____

_____

_____

_____ *2mks*

b) **Friction** as a **force** is useful in our day to day lives as it **supports movement** and helps to hold things firmly in our hands.

i) What is a force? _____

_____

_____ *1mrk*

ii) Define friction as a force?

_____

_____ *1mrk*

iii) Identify two ways of improving on the traction of vehicle tyres onto the road surface.

_____

_____ *2mks*

4. Thermometers are devices used for measuring temperature. There a variety of thermometers whose mode of operation depends upon the thermometric property they use, mode of display, suitability in terms of measuring very low or very high temperatures and type of scale used whether Kelvin, Celsius or Fahrenheit. Below are some examples of thermometers.

a) What is a thermometric property? _____

_____

_____ *1mrk*

b) Name each of the above thermometers and write down its thermometric property:

P: _____

Q: _____

R: _____

S: _____ *6mks*

c) Though water is abundant and cheap it is not the most commonly used liquid in thermometer P but instead it uses alcohol or mercury.

i) Identify any three reasons for not using water.

_____

_____

_____ *3mks*

ii) What reasons can you advance for the use of alcohol in thermometers instead of mercury?

_____

_____

_____

_____ *3mks*

d) State three steps involved in calibrating (obtaining a scale) thermometer P.

_____

_____

_____ *3mks*

e) If thermometer R reads 59^{o}F, what would be this reading in Kelvin?

_____

_____ *4mks*

5. a) Vacuum flasks have become basic home devices that are used for minimizing heat losses from food and liquids.

2mks

i) Name 4 processes by which heat can be lost from a substance.

_____ _____ _____ _____ *2mks*

ii) Name the basic parts A, B and C marked on the vacuum flask diagram.

iii) Explain how flasks minimises heat loss from its content.

_____

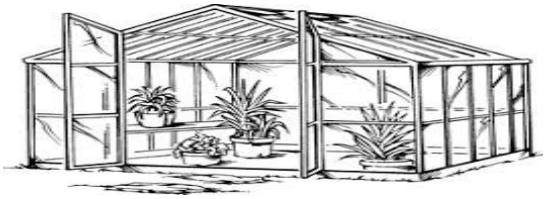
_____

_____

_____

_____

_____ *4mks*

b) 

A green house like one shown in the figure is used to promote quick growth of plants especially in cold areas.

Explain how a green house helps plants to get enough warmth (heat) needed for them to grow well.

_____
_____
_____
_____
_____
_____ *(3mks)*

c) Global warming is an example of green house effect and has raised a lot concern internationally because of its adverse effects o the temperature of the earth.

i) What do you understand by global warming?

_____
_____ *1mrk*

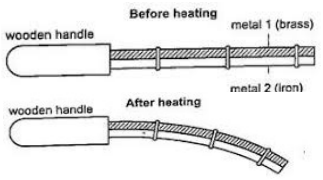
ii) What human activities have led to global warming?

_____
_____
_____
_____ *4mks*

iii) Suggest what can be done to reduce the effect of global warming.

_____
_____
_____
_____ *4mks*

6. a) The figure below shows a metal strip comprising of two metals brass and iron bounded tightly together. Study its behavior before and after being heated and answer the questions that follow:



i) What is observed when the strip is heated? _____
_____ *1mrk*

ii) Of the two metals which one expands more? _____ *1mrk*

iii) What is the importance of using two conjoined metals instead of a single metal strip? _____
_____
_____ *2mks*

iv) Mention any two devices which make use of bimetallic strips in their day to day operation. _____ _____ *2mks*

v) Using a labeled diagram, explain the operation of any one device mentioned in (iv) above.

Diagram:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____ *5mks*

b) Explain one negative effects of thermal expansion on the following and state one strategy of minimizing the effect:

i) Railway lines:

_____

_____

_____ *2mks*

ii) Hot water pipes:

_____

_____

_____ *2mks*

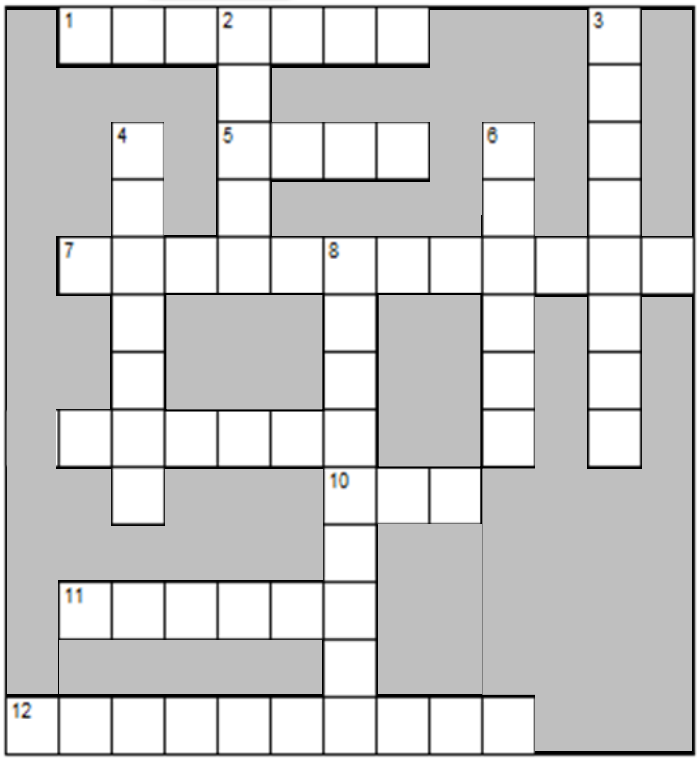
7. Complete the crossword puzzle given about key facts in light: (*10mks)*

Across

1 Type of eclipse of the sun
5 A collection of any two o more light rays
7 Source that produces light after becoming hot
9 General name for the shadows formed by space bo
10 Path taken by light
11 Material which you can not see through
12 One of the four general effects of light

Down

2 Darkest part of the shadow
3 Said to produce its own light
4 Type of camera-application of linear propagation of
6 Light can pass through this medium as well
8 Group of rays spreading outwardly from a source



8. **ACTIVITY OF INTERGRATION** (Use next page to answer this question) (*10mks)*

Scenario:

Your family was recently evicted from their land here in central Uganda and your father has decided to relocate to Kotido district in Northern Uganda which experiences a long dry season characterized by very high temperatures. It is where he would like to construct a family house.

Support Material:

Task:

a) As a knowledgeable physics student, advise your father explaining to him clearly on the materials to use and the shape of the house he should construct.

b) What do you think would be the best type of clothes you will have to buy in order to fit in the new environment with ease?

END