Subject: Technology	Examiner: Kotso
Type: Summative Term 1	Moderator: Rwizi
Date: 6 April 2021	Grade: 7
Marks: 70 Marks	Time: 1 hour 45 minutes

Name: _____

Instructions:

Read the questions carefully before you start answering

Make sure you answer ALL the questions.

Write neatly and legibly.

---

1. Give one word best described by the following sentences. (5)

   1.1 The force of energy that goes into a system. _____

   1.2 Movement that happens along a straight line. _____

   1.3 Back and forth movement over a central point. _____

   1.4 A system that moves things through liquids. _____

   1.5 Involves sharing information and ideas using drawings. _____

2. Multiple Choice Questions: Circle the correct answer. (5)

   2.1 Which of the following examples of specification would be included in a design brief.

   A You have three hours for the task

   B Use card, paper and sticky paper

   C Take care when working with scissors.

   D Work in pairs

2.2 A first-class lever

A has a load between the fulcrum and effort.

B has the fulcrum between the load and effort

C always provides mechanical advantage

D is a lever in which the load moves in the same direction as the force you apply.

2.3 An example of a 3rd class lever is

A a tennis player hitting the ball

B a wheelbarrow

C the lid of a suitcase

D a pair of scissors

2.4 An example of a machine that works using pneumatics is

A a jack used to lift a car to change a tyre.

B a front-end loader

C the breaking system of a motor vehicle.

D a dentist's drill

2.5 In a two-dimensional drawing

A the length, width and depth of an object are shown

B the dimensions are indicated in millimetres (mm)

C the vanishing point can be towards the left, right, or above the object

D hidden lines are shown as feint lines

3. You have made a hydraulic system using two syringes connected by a length of tubing, and filled with water. Syringe A has a volume of 5 ml and Syringe B has a volume of 20 ml.

3.1 Which syringe will you use as the input syringe if the output must be as far as possible. (1)

_____

_____

3.2 What is the advantage of using the 20 ml syringe as the input syringe? (1)

_____

_____

3.3 List two specification of a hydraulic system. (2)

_____

_____

3.4 Mechanisation impacts on society. Give one positive and one negative effect. (2)

_____

_____

4. Read the following scenario and then answer the questions.

SCENARIO
Imagine you and your family are on a cruise ship on your way to an exotic holiday. After a terrible storm the ship sinks and you are stranded on a deserted island. Every night there are torrential storms. In your possessions you have only a few candles, matches, a bottle of paraffin, a small amount of food and water and a pocket knife. Some debris has also washed ashore, including old bed sheets. To keep your family warm and safe you need to build a shelter. The shelter needs to be waterproof. It must be made from materials that you have in your possession or that you would find on the island. It needs to be stable, strong and durable.

4.1 Write a design brief. (2)

_____
_____
_____
_____

4.2 List three specifications. (3)

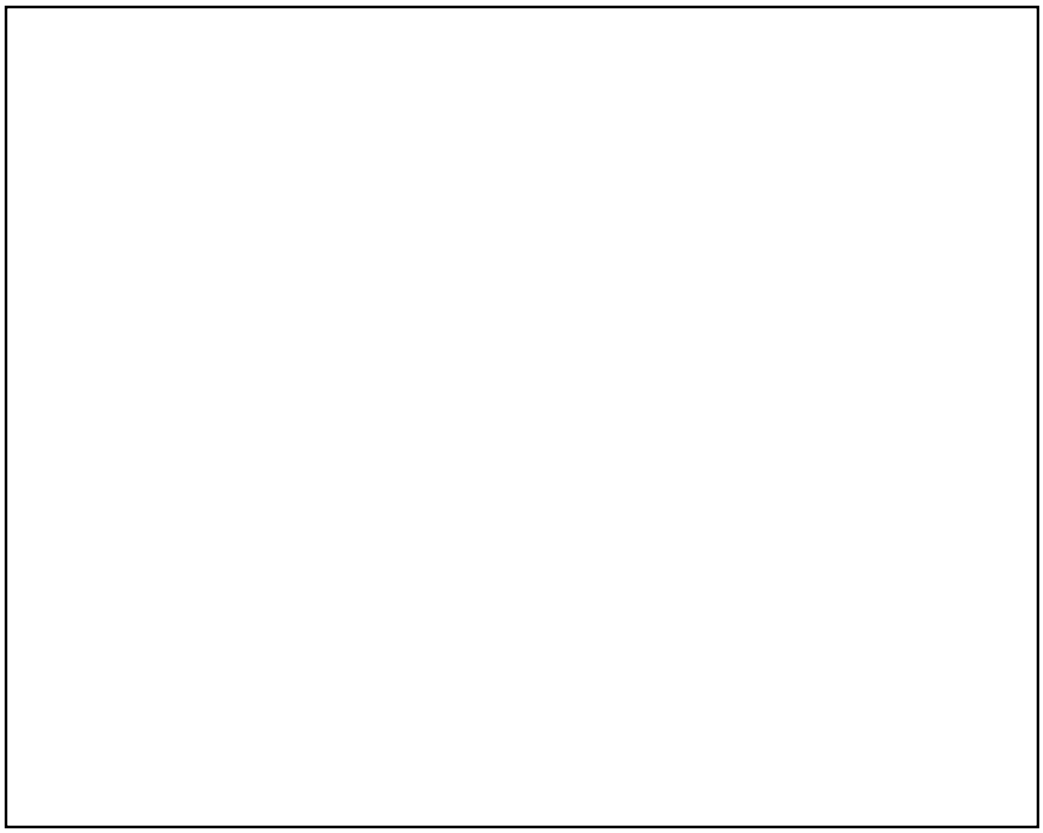
_____
_____
_____

4.3 List two constraints. (2)

_____
_____

4.4 Make a 3D oblique drawing of your solution. (6)

4.5 Make a one point perspective drawing of your solution. (4)



4.6 Analyse the impact the shipwreck could have on the environment. (Consider, specifically oil tankers) (4)

_____
_____
_____
_____

4.7 Determine the best method to waterproof your shelter using the resources you have available. (2)

_____
_____

5. Evaluate the importance of using a lever that gives mechanical advantages. (2)

_____

_____

6. Your class is having a cake sale to collect money to provide for disadvantaged children that attend the school. You need a structure t use to display the cakes on. The structure must be ready for use in 3 days time. It must be strong enough to support the weight of the cakes and ice cream container, that you will need to use as a till. The structure must be 100 cm high, 50 cm long and 30 cm wide. You may use boxes made from corrugated card but not those made from polystyrene.

   You are to draw part of the structure explain above. Use the scale of 1:10

   6.1 Calculate the length of the structure on the drawing. (2)

   _____

   _____

   _____

   _____

   6.2 Calculate the width of the structure on the drawing. (2)

   _____

   _____

   _____

   _____

   6.3 Calculate the height of the structure on the drawing. (2)

   _____

   _____

   _____

   _____

7. Mechanisms are very useful in our everyday lives.

7.1 Compare how the 1st class lever and 3rd class lever work.

(6)

_____
_____
_____
_____
_____
_____

7.2 Give two examples of each of these two levers. (4)

_____
_____
_____
_____

8. Distinguish between pneumatic systems and hydraulic systems.

(4)

_____
_____
_____
_____

9. Draw the cube shown below in oblique projection.

The cube is 120 mm square. The scale should be 1:2. Do not include dimensions. (8)

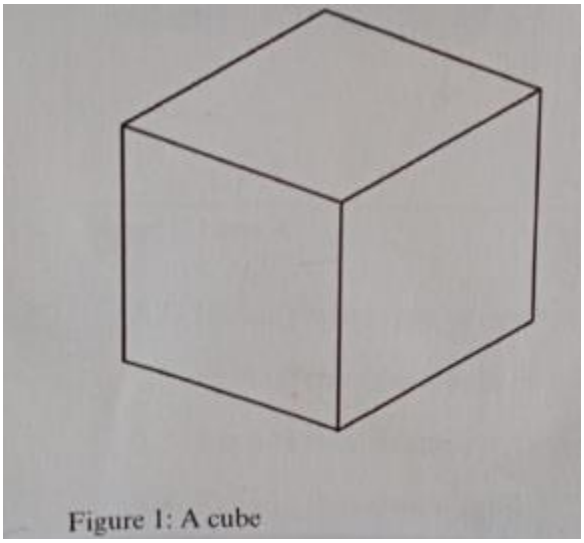


Figure 1: A cube

10. Explain what a scale drawing is. (1)

_____

_____

____ / 70 Total