

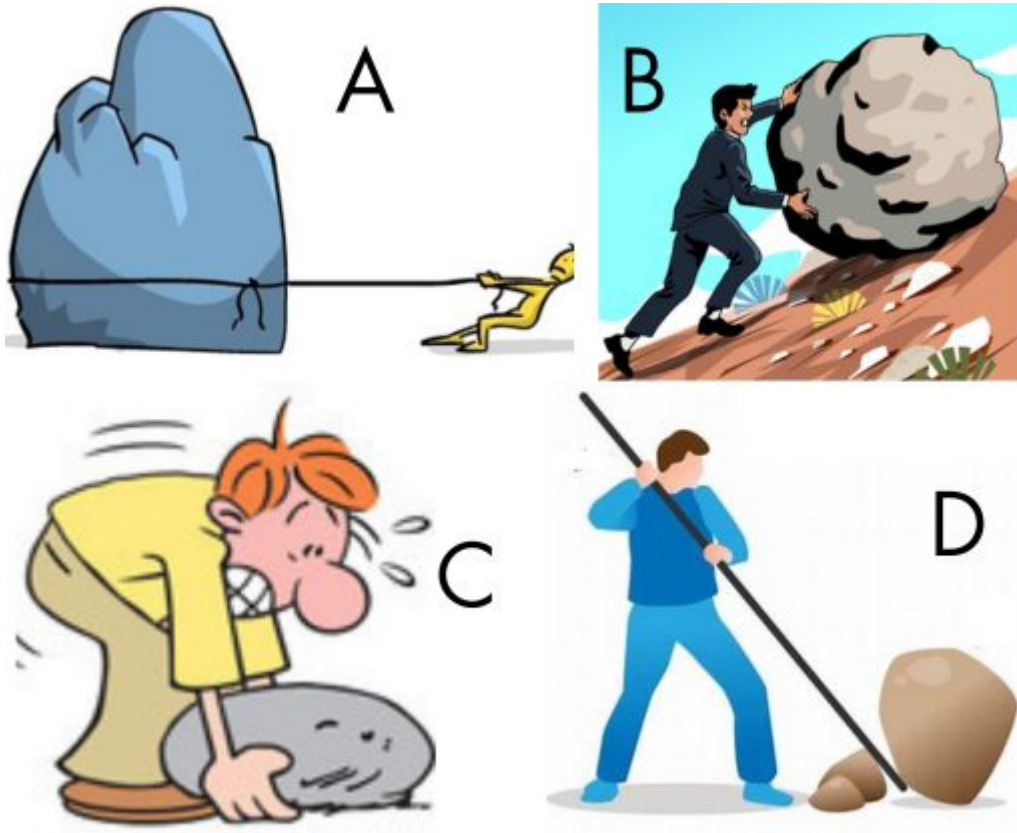


Subject: Grade 7 Technology
Topic: Technology: Term 1 - Mini-Exam
Total: 102 Marks

Name: _____

Date: _____

This image refers to question: 1



Question 1: Multiple Choice

4 marks

Choose the easiest method to move a rock without causing injury to a person.

- | | |
|----------|---|
| A | A] Pull the rock with a rope tied around it. |
| B | B] Push the rock. |
| C | C] Pick up the rock. |
| D | D] Move the rock with a pole used as a lever. |



Question 2: Text Input

3 marks

Which part of the jaws of life creates the pressure needed to force the blades to open or close?

TUBE SYRINGE BLADE

One-word answer only.

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This text refers to question: 3**Designing a Jaws of Life Rescue Tool for Rescue Services**

In rescue missions, Jaws of Life rescue tools are essential for cutting through the metal of a car body and bending or opening it to free trapped passengers. To ensure the safety of the passengers, rescue workers must be cautious while operating the tools.

Four types of Jaws of Life rescue tools are available: a spreader, cutter, combination tool, and ram. The rescue services in your area require a specialised tool to cut or pull open crumpled metal while working with linked levers.

Your task is to create a model of the Jaws of Life rescue tool attached to a flat piece of card acting as a base and powered by a hydraulic system. The hydraulic system should use syringes and tubing to operate.

Adapted from:

Gr7 Technology (mstworkbooks.co.za)

Question 3: Please Fill In The Blanks

8 marks

The (1) is the jaws of life tool used to push the crumpled metal pieces apart.

A (2) system using syringes and tubes containing liquid such as water for pressure.

The blades of the jaws of life will produce a high mechanical advantage with the help of (3).

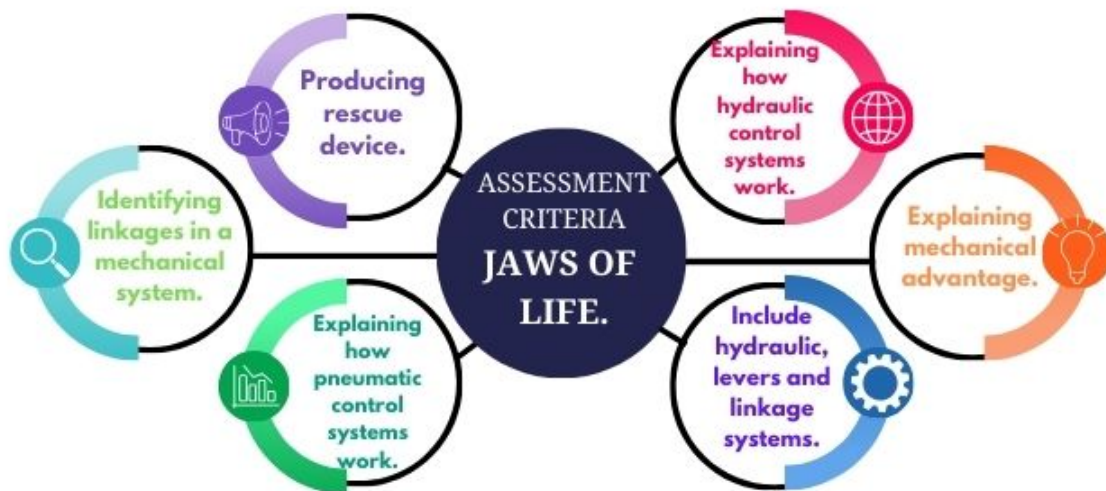
Rescue workers must work (4) because the jaws of life machines can be dangerous to operate.

Possible Answers: cautiously | rescue | spreader | cutter | levers | operating | hydraulic | essential

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This image refers to question: 4



Question 4: Multiple Choice

4 marks

Identify the assessment criteria which is NOT part of the jaws of life mini-pat.

- | | |
|----------|---|
| A | Identifying linkages in a mechanical system. |
| B | Explaining how hydraulic control systems work. |
| C | Explaining how electrical control systems work. |
| D | Explaining mechanical advantage. |

Question 5: Please Fill In The Blanks

8 marks

To activate the jaws of life, the person operating the effort syringe must apply (1) to open the blades.

It's important to note that the jaws of life may not function properly if there is a (2) in the syringes or tubes.

Making the (3) for the jaws of life is feasible using small bolts and nuts.

(4) can be used to secure the syringes to the base of the jaws of life.

Possible Answers: pivots | cardboard | pressure | tube | cable ties | needle | leak | sponge

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Question 6: Text Input

3 marks

Name the class of lever that offers the highest mechanical advantage.

One word answer only.

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Question 7: Text Input

3 marks

What must be filled in the syringes and tube of the jaws of life mini-pat to make it a hydraulic system?

AIR WATER

One-word answer only.

Question 8: Multiple Choice

4 marks

Moving the load closer to the fulcrum takes less effort to move, cut or lift it.

Choose the lever where the load is NOT near the fulcrum.

- | | |
|----------|---------------|
| A | wheelbarrow |
| B | bottle opener |
| C | seesaw |
| D | nutcracker |

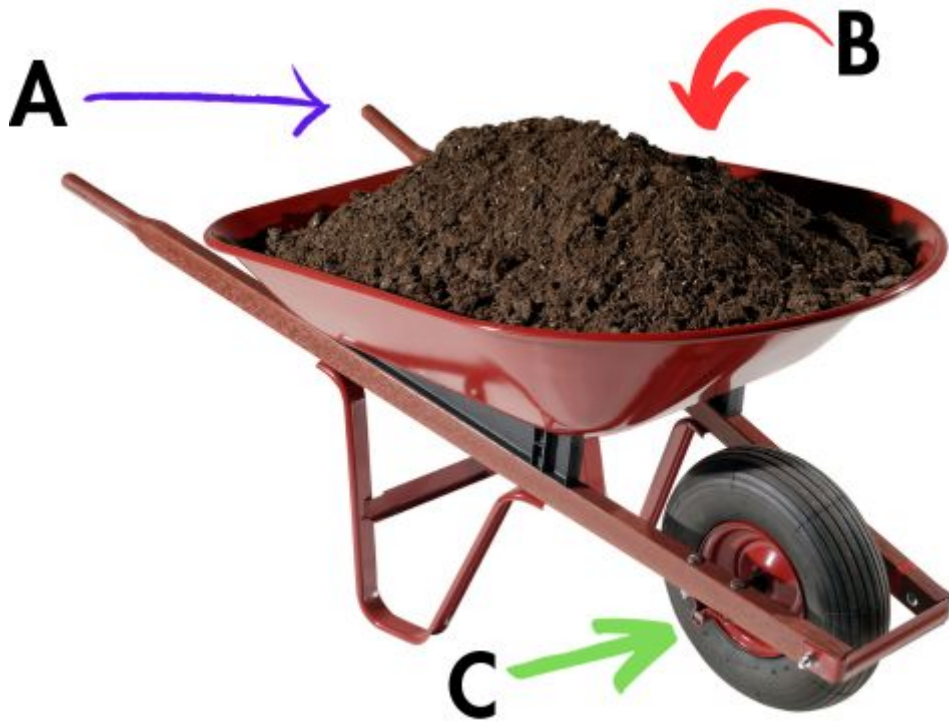
Question 9: True/False

2 marks

When the fulcrum is placed between the input and output forces, it is referred to as a first-class lever.



This image refers to question: 10



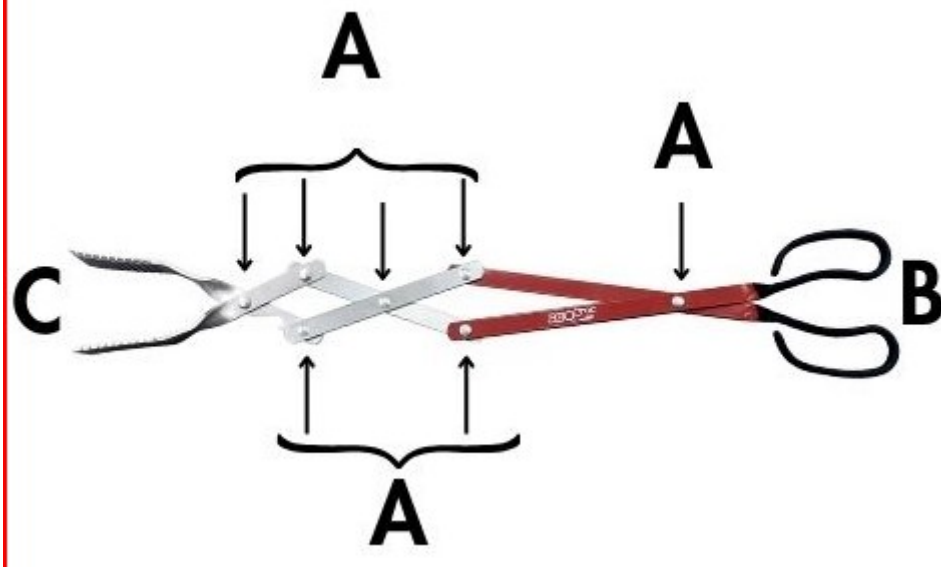
Question 10: Multiple Choice

4 marks

The parts of the second-class lever are labelled as follows.

- | | |
|----------|----------------------------------|
| A | A - Fulcrum B - Load C - Fulcrum |
| B | A - Effort B - Load C - Fulcrum |
| C | A - Fulcrum B - Effort C - Load |
| D | A - Load B - Fulcrum C - Effort |

This image refers to question: 11



Question 11: Please Fill In The Blanks

8 marks

The items labelled "A" are the (1), which will hold the parts together and help with movement.

The device is a (2) system that has several levers connected.

The (3) will be held at point "C".

The (4) at point "B" is where the person will input work by holding and moving the handles.

Possible Answers: linked lever | hydraulic | pivots | structure | effort | syringe | load | design

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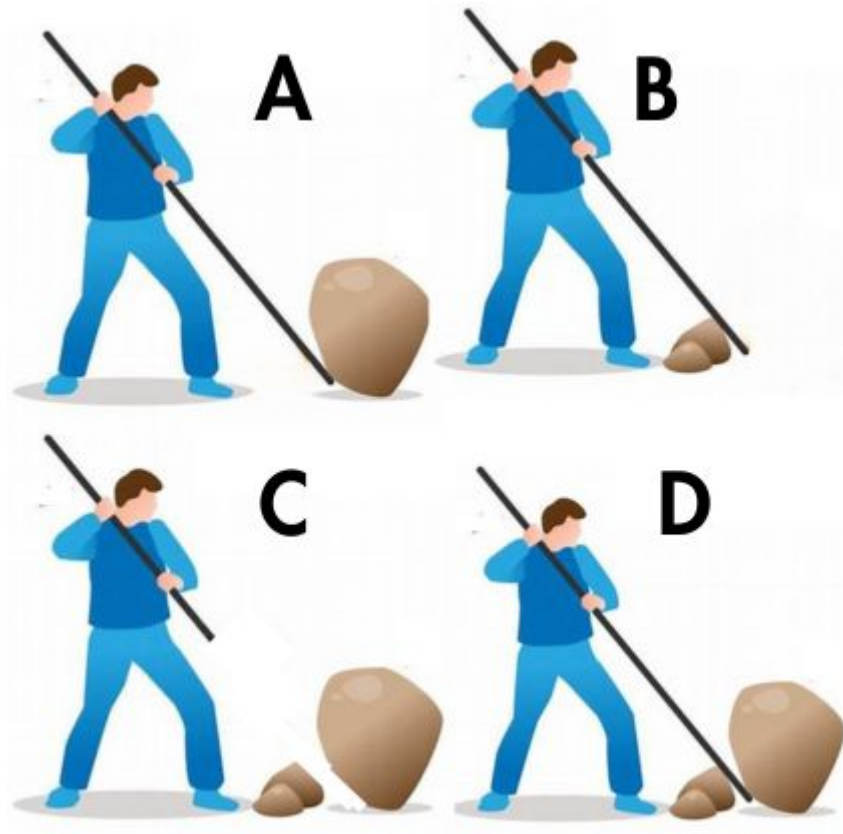
Question 12: True/False

2 marks

A lever can help you lift heavy objects. To lift a heavy object, use a long lever with the fulcrum close to the object. Applying a soft downward push on one side of the lever creates a greater upward push on the other side.

TRUE	FALSE
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This image refers to question: 13



Question 13: Multiple Choice

4 marks

Which is the correct way to use the lever?

- | | |
|----------|--|
| A | A - The stick is placed against the big rock. |
| B | B - The stick is placed against the small rock without the big rock. |
| C | C - The stick is not touching the rocks. |
| D | D - The stick is in between a small rock and a big rock. |

Question 14: True/False

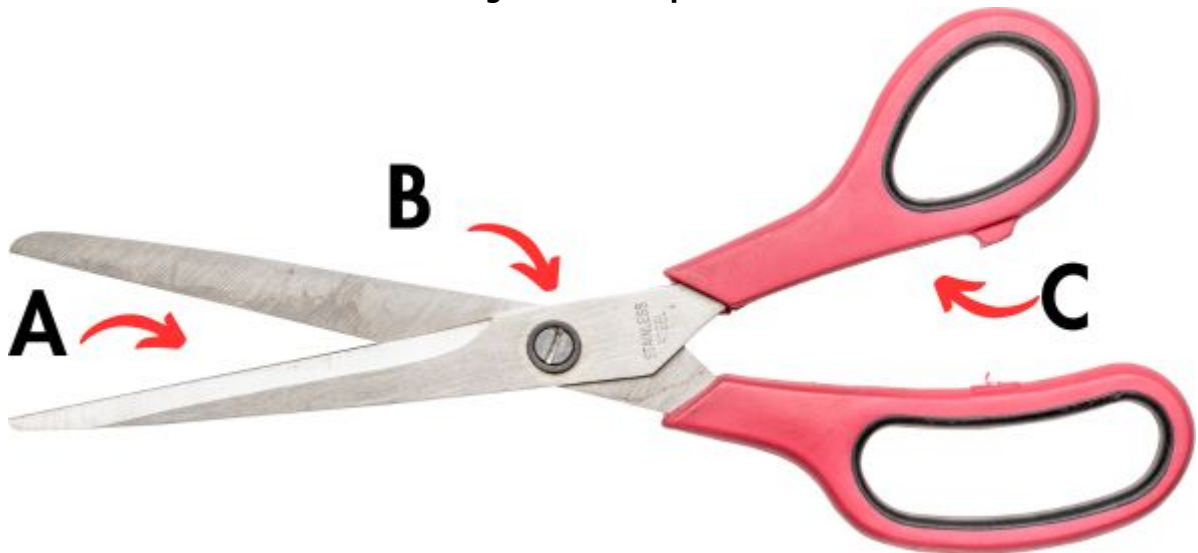
2 marks

A device like a syringe containing air or gas is called a pneumatic mechanism. In contrast, a hydraulic mechanism has water or oil in the cylinders and connecting pipes.

TRUE

FALSE

This image refers to question: 15



Question 15: Text Input

3 marks

Which component of the first class lever is labelled by the letter "C" or the handle?

ONE-word answer.

Question 16: Text Input

3 marks

Which part of the human body is a lever that can lift objects?

One-word answer only.

Question 17: True/False

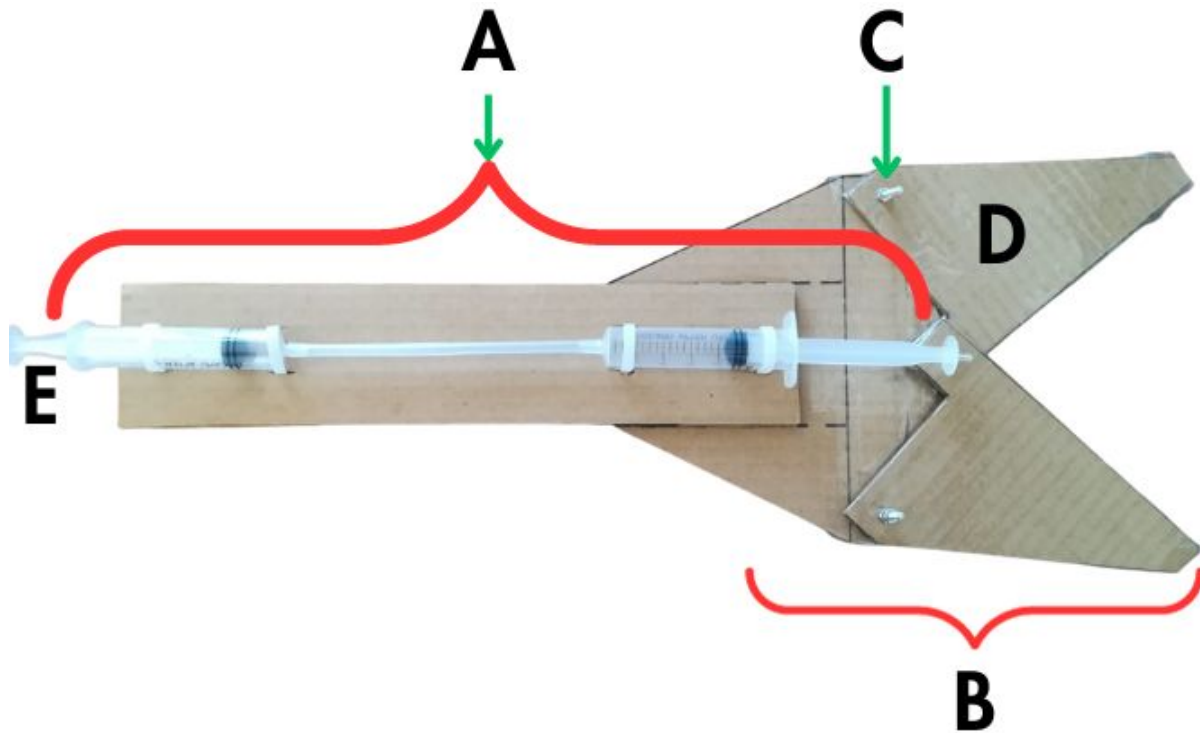
2 marks

The first-class lever, such as a pair of scissors, offers the most significant mechanical advantage of all the lever classes.

TRUE

FALSE

This image refers to question: 18



Question 18: Please Fill In The Blanks

8 marks

The (1) system will be the part labelled A, which contains the fluid for movement.

The part labelled D will work on the (2) that will be removed from the damaged car.

The initial input in the system will be the (3) activated in part E.

The (4) system in part B contains the pivots, load and effort.

Possible Answers: pivot | load | pneumatic | hydraulic | electrical | lever | measurement | effort

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This text refers to question: 19

The Design Process

(Investigate, Design, Make, Evaluate, Communicate - IDMEC) is a central aspect of this subject.

Investigation is the starting point and involves discovering contexts and needs, evaluating existing products, and performing practical tests to understand topics.

Design: At this level, learners should be introduced to the main aspects of design and evaluate both existing and designed products.

Make: Learners should monitor their progress and modify their solutions based on the problems they experience. Learners must show accuracy and skill, better organisation, and safer working practices as they work.

Evaluate: The product is tested for any faults that can be fixed.

Communication: Learners should continuously record and present progress in written and graphical forms. Their presentations must use different types of media.

Adapted from:

Technology CAPS Document - Curriculum and Assessment Policy Statement GRADES 7-9

Question 19: Please Fill In The Blanks

8 marks

The (1) stage will require testing the product to find faults before it is demonstrated to people.

The project is explored and researched to discover designs, materials and tools during (2).

At the (3) stage, the project is presented to other people through media such as posters, videos, notes, and slides.

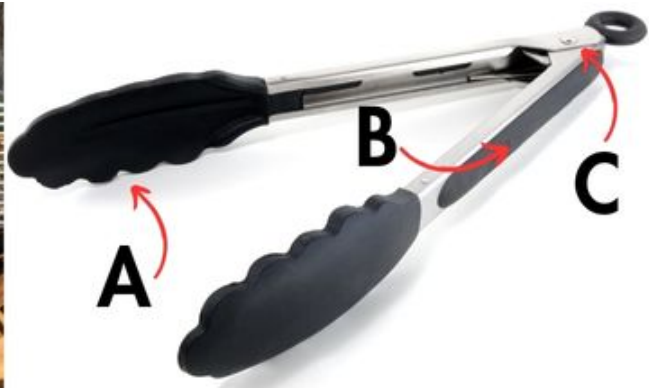
Existing and new product ideas are compared, and sketches are drawn in the (4) stage.

Possible Answers: design | make | communication | solutions | evaluation | IDMEC | investigation | process

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This image refers to question: 20



Question 20: Multiple Choice
Which class of lever is labelled as follows?

4 marks

A - Load B - Effort C - Fulcrum

- | | |
|----------|------------------------------|
| A | First and second class lever |
| B | Second-class lever |
| C | Third-class lever |
| D | First-class lever |

Question 21: Text Input

3 marks

Have you ever considered the maximum weight you could lift? Maybe even a car? It's unlikely that you could do it alone, but with the help of mechanical advantage, it's possible. Mechanical advantage is the ability of a machine to increase force and make tasks easier than if you were to rely on your strength.

What type of advantage do machines provide?

One-word answer only.

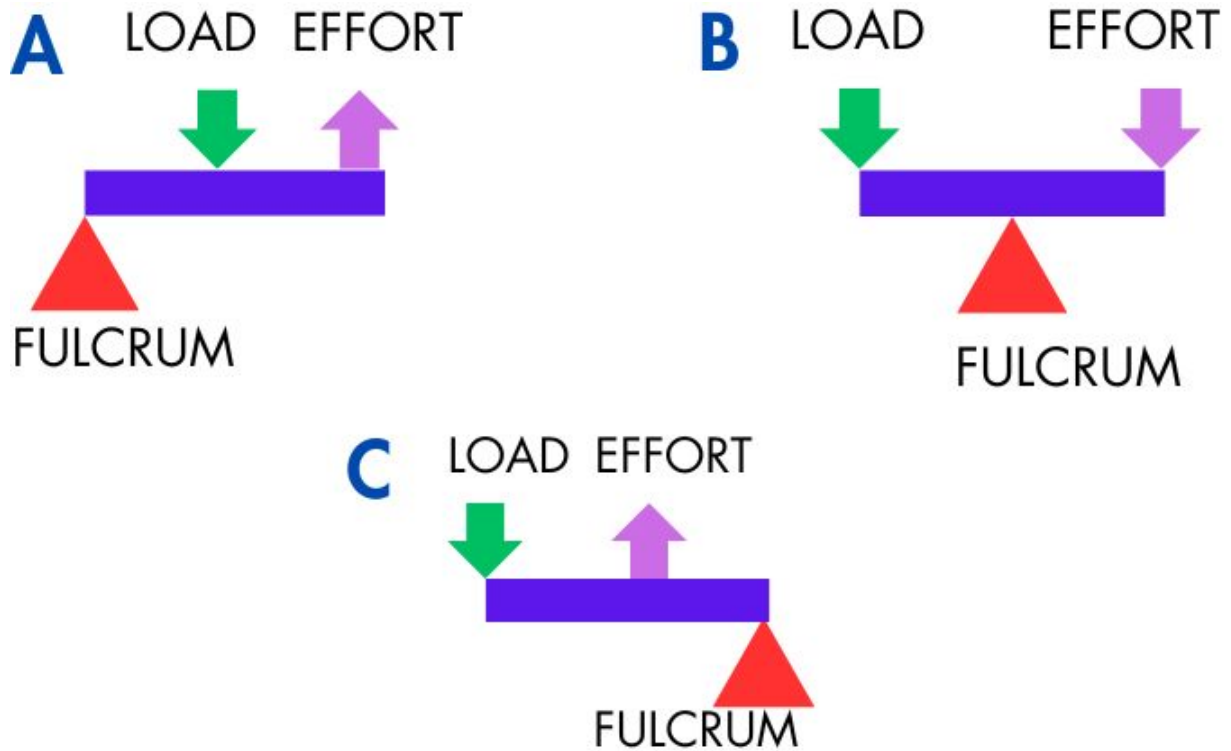
Question 22: True/False

2 marks

A broom and braai tongs are examples of first-class levers.

- | | |
|-------------|--------------|
| TRUE | FALSE |
|-------------|--------------|

This image refers to question: 23



Question 23: Please Fill In The Blanks

6 marks

Diagram A is a (1) class lever.

Diagram B is a (2) class lever.

Diagram C is a (3) class lever.

Possible Answers: first | second | third | fourth | fifth | sixth

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This image refers to question: 24



Question 24: True/False

2 marks

The jaws of life used by emergency rescue services are made from high-strength metal, so they can easily cut out the vehicle's metal parts.

TRUE

FALSE

Question 25: True/False

2 marks

When you sweep the floor with a long handle, you use the broom as a lever. The long handle makes it possible to sweep over a large area while moving your hands only for a short distance.

The broom gives you a **distance and mechanical advantage**.

TRUE

FALSE

Total: 102 Marks