



HILLCREST HIGH SCHOOL
TECHNOLOGY
NOVEMBER EXAMINATION 2022
GRADE 8

TOTAL: 100 MARKS

TIME: 1 HOUR

EXAMINER: MRS N MAGUBANE

MODERATOR: MRS T TONKIN

NAME: _____ GRADE 8 _____

SUBJECT EDUCATOR: BEGA/ STOLS/ TONKIN/ MAGUBANE/ NAIDOO

INSTRUCTIONS

1. The question paper consists of 4 questions and 8 pages.
2. Answer all questions in the spaces provided.
3. Write your name and grade clearly and neatly in the space provided.
4. Highlight your Technology teacher's name above.
5. Technological based answers must be written.
6. All drawings/sketches must be completed using a sharp pencil and drawing instruments unless otherwise instructed.
7. Marks will be deducted for untidy work especially drawings/sketches.

Q1	Q2	Q3	Q4	TOTAL
25	10	30	35	100

Question 1

[25]

Short Questions

1.1. Choose the correct answer from the statements below. Circle your answer. (5)

1.1.1. A movement that happens in one direction in mechanisms is called...

- A Oscillating
- B Reciprocating
- C Linear
- D Rotary

1.1.2 A device that changes linear motion into reciprocating motion

- A Axle
- B Cam
- C Wheel
- D Crank

1.1.3. The ratio of load to effort in a system is called

- A Effort force
- B Long distance
- C Mechanical Advantage
- D Compression Force

1.1.4. AMD stands for

- A Acid Monitoring Damage
- B Acid Mine Design
- C Acid Mine Drainage
- D None of the above

1.1.5. An output device on an electrical circuit

- A Lightbulb
- B LED
- C Buzzer
- D All of the above

1.2. Indicate whether the following statements are true/false (5)

1.2.1. Sub system is a combination of components of mechanisms put together.

1.2.2. A wheel can work without the axle present in any machine

1.2.3. Eccentric cam is a wheel with an axle that is off centre

1.2.4. Simple cranks enable the user to apply large force by turning the pin

1.2.5. The cam follower is held against the cam either by its own weight or by a spring.

1.3. Use the following words to fill in the spaces below. (5)

Switch, cog, compression force, pulley system, triangulation, cam

1.3.1. A working part of the machine that changes direction of force to make tasks easier.

1.3.2. Control device in a circuit

- 1.3.3. A shaped wheel /disc that is fixed on an axle _____
- 1.3.4. Teeth on a gear wheel _____
- 1.3.5. When triangular shapes are formed by members that are used to brace a structure _____

1.4. Match the correct term in Column B with the correct description in Column A. Write your answer in the space provided. (10)

Column A		Column B		ANSWERS	
1.4.1.	A gear that changes rotational movement through 90 degrees	A	Investigating	1.4.1.	
1.4.2.	Part of a shaft that has continuous groove in form of a screw thread	B	Meshing	1.4.2.	
1.4.3.	Spur gear that meshes with a flat strip of gear teeth called the rack.	C	Axle	1.4.3.	
1.4.4.	Wheels attached by an axle to a motor	D	Fixed pivot	1.4.4.	
1.4.5	Central shaft used to rotate a wheel or gear	E	Pinion	1.4.5	
1.4.6.	Pivot that turns around one point	F	Cam Follower	1.4.6.	
1.4.7	A pivot that can move away from its original position	G	Bevel gear	1.4.7	
1.4.8	Finding out information about a given topic or project.	H	Worm shaft	1.4.8	
1.4.9	A device that follows the outside side of the cam	I	Driver wheels	1.4.9	
1.4.10.	Happens when the teeth of one gear links together or engages with another gear.	J	Moving pivot	1.4.10.	



Question 2
Structures



[10]

2.1. Complete the sentences below: (6)

- 2.1.1. A _____ structure is _____ parts joined together.
- 2.1.2. A _____ structure protects a _____ .
- 2.1.3. Solid structures are _____. They support _____ and transfer these loads safely to the ground.

2.2. Complete the table below by filling in whether an image is (a) man – made or natural and (b) shell / frame or solid structure (4)

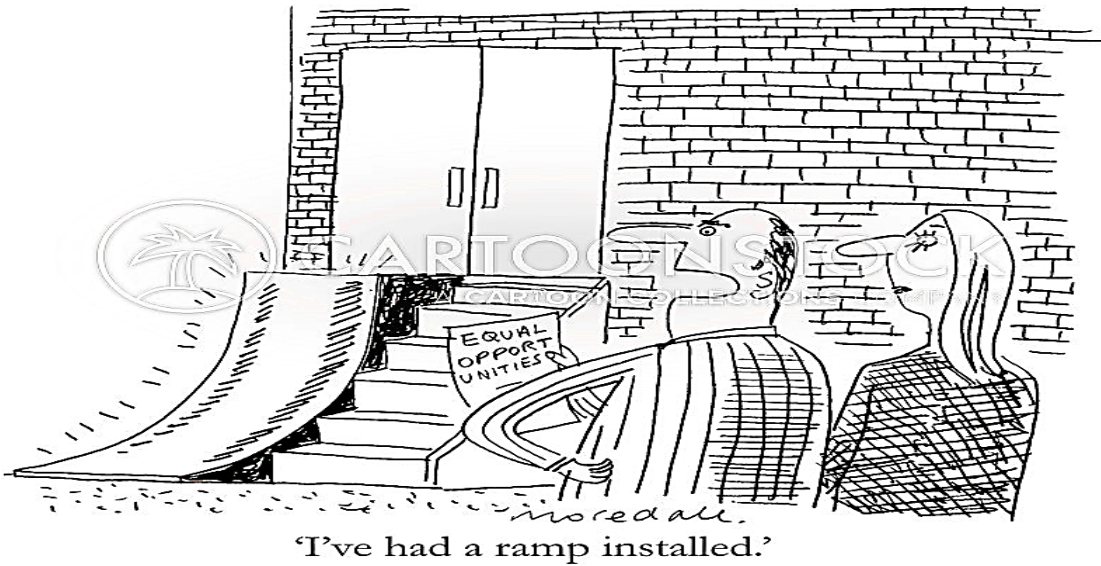
	Image	Man-made / Natural	Shell/ Frame/ Solid
2.2.1.			
2.2.2.			

2.2.3.			
2.2.4.			

[30]

Question 3
Mechanical Systems

3.1. Look at the picture below and answer the questions that follow.

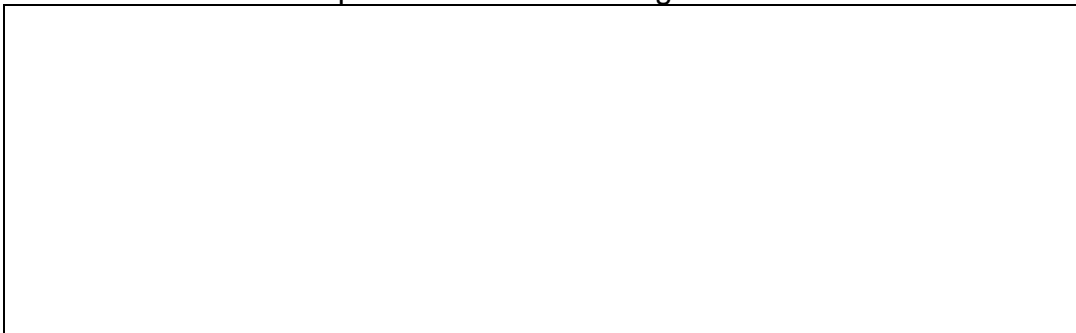


3.1.1. What is another name that is used for the ramp? (1)

_____ (3)

3.1.2. Do you think this ramp is suitable for the user? Explain. (3)

3.1.3. Redraw a suitable ramp below for this building. (2)

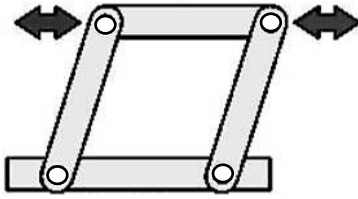


3.2. Identify The types of linkages below and identify which pivots are fixed by shading in the fixed pivots. (8)

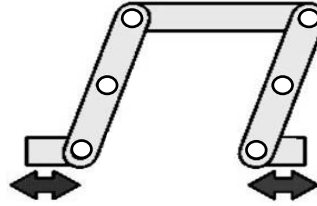
KEY: ● Fixed Pivot

○ Moveable Pivot

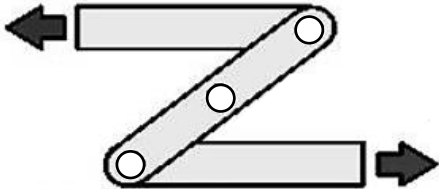
3.2.1. _____



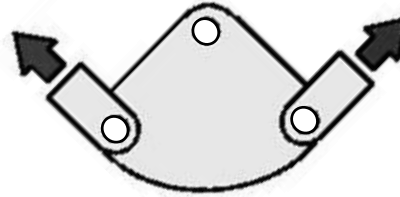
3.2.2. _____



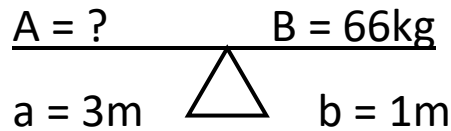
3.2.3. _____



3.2.4. _____



3.3. Use the formula you have learned to solve for the missing variable in the lever problem. How heavy is the rock? (4)



3.4. Define the following terms: (4)

3.4.1. Lever: _____

3.4.2. Pivot: _____

3.4.3. Fulcrum: _____

3.4.4. Linkage: _____

3.5. Name the different types of gears below: (4)



A _____

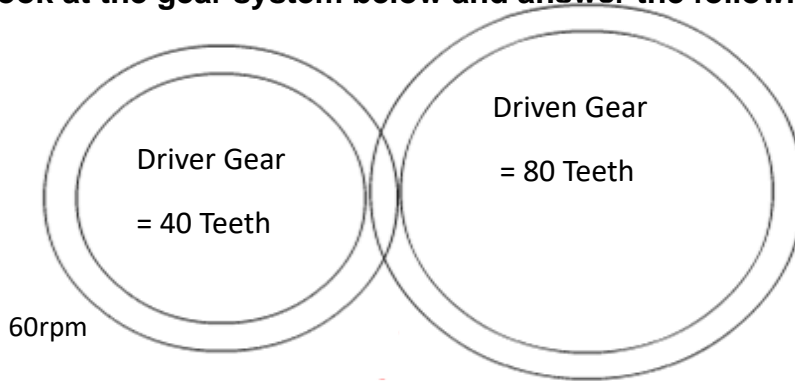
B _____



C _____

D _____

3.6. Look at the gear system below and answer the following questions:



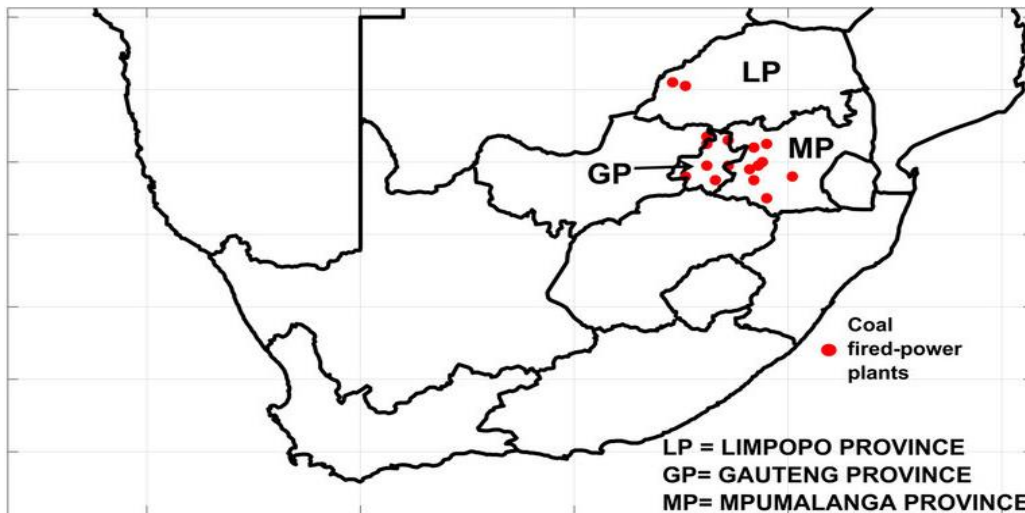
3.6.1. Calculate the velocity ratio:

3.6.2. Calculate the output speed

Question 4
Electricity

[35]

4.1. Study the following Coal Mine Map and answer the questions that follow:



4.1.1. Identify which provinces on the map that have more coal power plants. (2)

4.1.2. What could be the reason why these areas have most power plants (2)

4.1.3. Give four other sources of electricity (4)

4.1.4. List any other sources of energy that can provide heat for cooking and light (1)

4.2. Explain what an Input, Control and Output device is and give one example of each. (6)

Input device:

Control device:

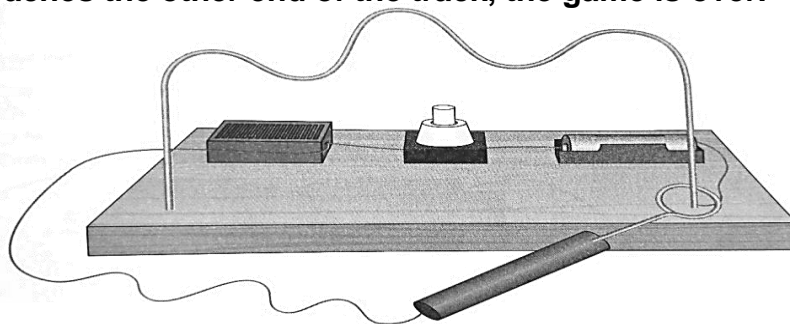
Output device:

4.3. Draw a circuit diagram containing:

4.3.1. A) 1,5V cell; switch and a lamp (3)

4.3.2. B) 9V battery; switch and a buzzer (4)

4.4. Look at the diagram below and read the following extract which explains the diagram. A player starts a game by switching the main switch on. The aim is to move the ring from the one end of the track without making the buzzer buzz. The track and the ring are made of wire and are part of the same circuit, they form the two contacts of a switch, so if they touch, the circuit is closed and the buzzer buzzes. If the buzzer buzz's before the ring reaches the other end of the track, the game is over.



4.4.1. Where are the two switches in this circuit? (2)

4.4.2. Fill in the missing answers for the truth table below for the circuit: (5)

Switch A	Switch B	Buzzer
	0	0
1	0	
0		0
	1	

4.5. What is a series circuit? (1)

4.6. What is a parallel circuit? (1)

4.7. Complete the table below filling in the advantages and disadvantages with regards to cells in series and parallel. (4)

Connection type	Advantage	Disadvantage
Series		
Parallel		

