HILLCREST HIGH SCHOOL

Grade 9

TECHNOLOGY

NOVEMBER 2025

MARKS: 120 **EXAMINER:** Mrs Stols

TIME: 2 Hours **MODERATOR:** Mrs Tonkin

SECTION		MARKS	TIME (minutes)
QUESTION 1:	Short questions (All topics)	10	10
QUESTION 2:	Mechanical Systems	30	30
QUESTION 3:	Electrical Systems	22	22
QUESTION 4:	Food preservation	20	20
QUESTION 5:	Metal Preservation & Plastic	25	25
QUESTION 6:	Drawing	13	13
TOTAL:		**120**	**120**

INSTRUCTIONS

1. The question paper consists of 6 questions and 8 pages including the cover page.
2. A calculator may be used.
3. Write your Technology teacher's name on your answer booklet.
4. Technological based answers must be written.
5. All drawings/sketches must be completed using a sharp pencil and drawing instruments unless otherwise instructed.
6. Marks will be deducted for untidy work especially drawings/sketches.

QUESTION 1 SHORT QUESTIONS [10]

1.1.1. D
1.1.2. D
1.1.3. C
1.1.4. D
1.1.5. B
1.1.6. B
1.1.7. C
1.1.8. C
1.1.9. D
1.1.10. C

QUESTION 2 MECHANICAL SYSTEMS [30]

2.1. 2.1.1. Piston B moves up. (1)
2.1.2. 10mm (1)
2.1.3. Mechanical advantage = load/ effort (3)
= 400 N /50 N
= 8

2.2. Disc brakes are used to stop a moving vehicle more effectively. (1)

2.3. 2.3.1. A – Pawl (3)
B – Ratchet
C – Crank handle
2.3.2. Mechanical jack used to lift vehicles (1)
A winch at a water well
Tightening mechanisms in mountain climbing
Fairground roller coasters

2.4. 2.4.1. D (5)
2.4.2. A
2.4.3. F
2.4.4. E
2.4.5. B

2.5. (5)

Input	Process	Output
Person pushes and pulls the handle of the jack up and down.	The hydraulic fluid is forced past the one way valve and moves the output piston.	The jack lifts the car or load.

2.6. A wheel, with a grove, in it. (2)

2.7. A person can pull down on a rope to lift a load, instead of trying to lift a load up. (2)
Pulleys create a mechanical advantage to make work easier.

2.8. A block and tackle a specialised form of a compound pulley. (2)
It consists of pulleys that have multiple wheels around the same axle.

2.9. 2.9.1. Force needed/Effort (2)
= 40 N ÷ No. of falls away from moving pulleys
= 40 N ÷ 4
= 10 N

2.9.2. MA = 4 (2)

QUESTION 3 ELECTRICAL SYSTEMS [22]

3.1. 3.1.1. Parallel (1)

3.1.2. Lamp 2 (L2) (1)

3.1.3. A – Battery of cells (2)
B – Open switch or circuit breaker

3.2. V = I x R (3)
= 2A × 15 Ω
= 30 V

3.3. 3.3.1. Light Emitting Diode (1)

3.3.2. A control device that allows current to flow in one direction only (polarity) and emits light. (1)

3.3.3. (2)
- The negative pole of an LED is shorter than the positive pole.
- The casing of the LED is flat on the side of the negative pole.
- If you look through the LED, the larger piece is connected to the negative pole.

3.4. 3.4.1. 3700Ω with a tolerance of 1%

3.4.2. 4 600 000Ω with a tolerance of 10%

3.5. 3.5.1. Conventional (5)

3.5.2. parallel

3.5.3. series

3.5.4. Electron flow

3.5.5. series

QUESTION 4 FOOD PRESERVATION [20]

4.1. 4.1.1. B

4.1.2. E

4.1.3. D

4.1.4. A

4.1.5. C

4.2.1. Drying, pickling, fermenting, salting, heating, freezing. (3)
(Any 3 of the listed methods.)

4.2.2. Some food loses their nutritional value (1)

4.2.3. Vinegar and Ethyl Maltol (2)

4.2.4. Destroy the vitamins. (2)

Not good for digestive system due to high acidity levels

4.2.5. Thyme, Coriander and Cloves (3)

4.3. 4.3.1. The point in a seed's growth into a seedling breaks out of the seed case. (2)

4.3.2. Keeps the temperature constant. (2)
A cool temperature limits the growth of fungi and insects.

QUESTION 5 METAL PRESERVATION & PLASTIC [25]

5.1. 5.1.1. It is a chemical term that means the gradual destruction of a material (2)

5.1.2. They contain iron. (1)

5.1.3. Galvanising, Painting, Metal plating, Oiling and Waxing (2)

5.2. 5.2.1. F (7)
5.2.2. G
5.2.3. D
5.2.4. C
5.2.5. A
5.2.6. E
5.2.7. B

5.3. Moulded into different shapes (4)
Flexible
Elastic
Durable
Transparent
Coloured
Heat resistance
Water resistant

5.4. 5.4.1. Society: Employment opportunities – skills development a way of making money. (2)

Environment: Less pollution/reduces the amount of waste that ends up in landfills, reduces environmentally harmful processes such as mining, power generation and water exploitation.

5.4.2. Food preservation enabled groups of people to live in one place and form a community. (1)

Humans no longer had to consume hunted animals or harvest immediately; they could preserve some of their food to eat at a later time.

5.4.3. Type of plastic that when heated becomes permanently rigid and hard. (1)

5.4.4. Durability, strength and heat resistance (3)

5.4.5. A type of plastic that becomes soft when heated and hardens when cooled. (1)

5.4.6. High Density Polyethylene (1)