HILLCREST HIGH SCHOOL

TECHNOLOGY

NOVEMBER EXAMINATION 2022

GRADE 9

TOTAL: 100 MARKS **TIME: 1 HOUR**

EXAMINER: MRS A STOLS **MODERATOR: MRS T TONKIN**

NAME: _____ GRADE 9 _____

SUBJECT EDUCATOR: BEGA/ STOLS/ TONKIN / NAIDOO

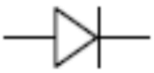
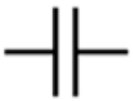
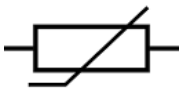
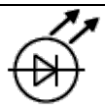
INSTRUCTIONS

1. The question paper consists of 7 questions and 6 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-Q4 40	Q5 25	Q6 25	Q7 10	TOTAL 100

Question 1 **[5]**

Match the symbol with its name:

	Symbol		Component		Answer	
1.1.		A	Thermistor	1.1.		(1)
1.2.		B	Diode	1.2.		(1)
1.3.		C	Resistor	1.3.		(1)
1.4.		D	Capacitor	1.4.		(1)
1.5.		E	LED	1.5.		(1)

Question 2 **[5]**

Indicate if the following statements are TRUE of FALSE	**T**	**F**	
Example: A battery in series is an energy source with a higher voltage	**X**		
2.1. Ammeter is used to measure current at a certain point in a circuit			(1)
2.2. Resistance is measured using an ohm meter			(1)
2.3. LED is a controlled device that is not allowing current to flow in one direction			(1)
2.4. A semi-conductor has the properties of a conductor and an insulator.			(1)
2.5. Capacitor turns streetlights on at night-time and off in daytime.			(1)

Question 3 **[9]**

Read the following passage and answer the questions that follow.

Ionization or photoelectric detectors?

There are two main types of smoke detectors. Ionization detectors and photoelectric detectors. A smoke alarm uses one or both methods, sometimes plus a heat detector, to warn of a fire. Both ionization and photoelectric detectors are effective smoke sensors. Ionization detectors respond more quickly to flaming fires with smaller combustion particles; photoelectric detectors respond more quickly to smouldering fires. In either type of detector, steam or high humidity can lead to condensation on the circuit board and sensor, causing the alarm to sound. Ionization detectors are less expensive than photoelectric detectors, but some users purposely disable them because they are more likely to sound an alarm from normal cooking due to their sensitivity to minute smoke particles. However, ionization detectors have a degree of built-in security not inherent to photoelectric detectors. When the battery starts to fail in an ionization detector, the ion current falls and the alarm sounds, warning that it is time to change the battery before the detector becomes ineffective. Backup batteries may be used for photoelectric detector.

3.1. Give one reason why people disable their ionization detectors? (2)

_____

_____

3.2. Name 3 other sensors. (3)

_____

_____

_____

3.3. Sensors change in relation to the ambient conditions, name two of these characteristics? (2)

_____

3.4. Fill in the table below to elaborate on the differences between Ionization and photoelectric smoke detectors. (2)

Ionization smoke detectors.	**Photoelectric smoke detectors.**

Question 4 **[21]**

4.1. Fill in the missing words:

4.1.1. _____ current flows from positive to negative (1)

4.1.2. Cells are connected in _____, the voltage will not increase, but the currents will be added together. (1)

4.1.3. If there are two switches connected in _____, both switches must be closed for the current to flow through the circuit. (1)

4.1.4. _____ current flows from negative to positive. (1)

4.1.5. Cells are connected in _____, then the voltages of each cell are added together, but the current will stay the same. (1)

4.2. Define Ohm's Law:

_____ (4)

_____

_____

4.3. Complete the calculations:

4.3.1. Calculate the resistance of a stove if the stove is running at 48V with a current of 2A. (2)

_____

_____

_____

4.3.2. Calculate the voltage of a hair strainer if the amount of current running through it is 14A and the resistance is 5Ω (2)

_____

_____

_____

4.3.3. Calculate the current in a circuit with a 20V computer giving off a resistance of 10Ω (2)

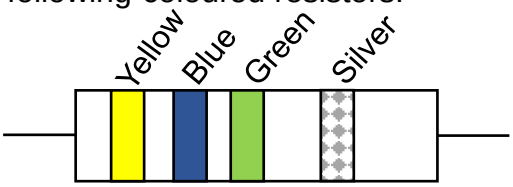
_____

_____

_____

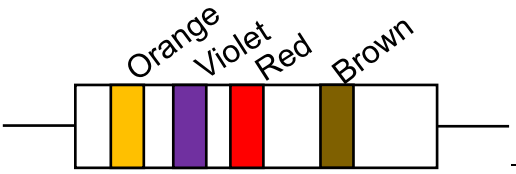
4.4. Write down the resistance and the tolerance for the following-coloured resistors: (6)

4.4.1.



_____

4.4.2.



_____

Question 5 **[25]**

5.1. Fill in the flow chart to indicate how modern canning is done on a production line in canning factories. (6)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

_____

8. _____

_____

(1)

9. _____

10. _____

11. _____

5.2. Follow the rubric and design your own label for a preservation jar. (10)

Rubric		
Colour		2
Creativity		5
Neatness		2
Product Name		1
TOTAL		**10**

5.3. Explain the following terms:

5.3.1. Germination: _____ (1)

_____

5.3.2. Aeration: _____ (1)

_____

5.4. Read the below on preserving and answer the questions that follows.

During pickling, micro- organisms cannot survive in very acidic conditions. Salt and other flavorings such as pickling spices are added to make the pickles taste good

5.4.1. Name one natural and chemical preservative? (2)

_____

5.4.2. Name two disadvantages of pickling? (2)

_____

_____

5.4.3. Give three examples of herbs that you could add with your pickled products. (3)

_____

Question 6 **[25]**

Match the identification symbol with its uses:

6.1.	Identification symbol		Uses	Answer		(7)
6.1.1.		A	Frozen food bags; rubbish bags, soft squeezable bottles, milk sachets	6.1.1.		
6.1.2.		B	Clear trays for food and toiletries, clear bottles, pipes, credit cards, blood transfusion bags, cling film	6.1.2.		
6.1.3.		C	Beverage bottles; baby milk bottles. Non-packaging uses for polycarbonate: compact discs.	6.1.3.		
6.1.4.		D	Egg cartons; packing peanuts; disposable cups, plates, trays and cutlery.	6.1.4.		
6.1.5.		E	Packaging of various foodstuffs and liquids, such as soft drink	6.1.5.		
6.1.6.		F	Milk bottles, motor oil containers, buckets, crates, and bags	6.1.6.		
6.1.7.		G	Reusable microwaveable ware; kitchenware; yogurt containers; margarine tubs.	6.1.7.		

6.2. Describe four of the properties of plastics. (4)

6.3. List 4 plastic products you use at home and at school? (4)

1 - 2 -

3 - 4 -

6.4. Give reasons why plastic is a popular material to use when manufacturing a product? (2)

6.5. What does 'recycling' mean to you? (3)

6.6. What is the difference between thermosetting plastic and thermoplastic? (4)

Thermosetting plastic:

Thermoplastic:

6.7. In what year did the Nurdle Spill in Durban harbor occur? (1)

Question 7 **[10]**

Preserving metals

7.1. Preserving metals in Kwa-Zulu Natal is vital. Why would you agree with this statement? (1)

____

7.2. What is corrosion? (2)

____

____

7.3. Name one other way in which to preserve metals. (Besides hot dip galvanising) (1)

____

7.4. Discuss the steps to Hot Dip Galvanising below: (6)

Step 1: Cleaning

____

Step 2: Pickling

____

Step 3: Fluxing

____

Step 4: Galvanising

____

Step 5: Finishing

____

Step 6: Inspection

____

PRESEVES

Y	R	A	S	P	B	E	R	R	Y	X	B	U	O	J	B
O	R	C	J	G	G	B	I	B	I	L	P	R	G	P	L
R	G	R	K	C	M	H	B	A	A	K	P	W	R	H	U
S	E	N	E	Y	C	O	B	C	F	I	P	T	I	T	E
W	I	B	A	B	G	D	K	C	C	E	M	I	L	M	B
N	V	B	M	M	K	C	U	C	W	G	Q	Y	T	Q	E
A	O	G	U	U	U	C	A	U	O	O	R	E	N	T	R
I	P	B	X	R	C	L	A	O	Q	R	T	C	R	F	R
T	M	P	R	U	I	U	S	L	E	C	R	I	F	O	Y
J	O	A	L	L	U	E	C	B	B	M	D	K	P	I	F
N	N	C	L	E	B	Z	W	O	D	V	N	J	D	M	H
T	Q	I	I	E	U	A	L	J	E	C	A	M	K	V	E
C	H	Q	R	R	R	L	A	J	N	I	R	B	L	I	H
C	E	R	O	T	P	N	R	O	C	T	E	E	W	S	O
G	Y	I	S	L	N	A	U	Q	L	G	O	O	R	E	D

APPLE	BRINJAL	MANGO
APRICOT	CHILLI	PICCALILLI
BLACKBERRY	CUCUMBER	RASPBERRY
BLACKCURRENT	GOOSEBERRY	STRAWBERRY
BLUEBERRY	LIME	SWEETCORN