



### STUDENT SECTION

Name				Class	
Student MOE number (SIS)		School MOE Number		STUDENT SIGNATURE	
School name					

**PLEASE NOTE** – This **SAMPLE** paper is to guide students on question types **ONLY**. It may not reflect the content for the final examination. Please refer to the coverage documents.  
**Section 3 - Q2 – Requires colour printing QB for the Register colour coding chart to be displayed.**

## Creative Design & Innovation

### 11 General

### Sample - Term 2

Date: February 2018

Time: TBC

Duration: 35 minutes

#### STUDENT INSTRUCTIONS –

Students must attempt **all** questions.

For this examination, you must have:

1. An ink pen – blue.
2. A pencil.
3. A ruler.

#### TEACHER NOTES & INSTRUCTIONS

Please tick ✓ the correct answers in **RED INK** and then write the mark awarded in the marking columns. With multiple mark answers highlight where the mark is awarded by underlining or by using an extra tick.

#### FOR ADMIN ONLY

##### MARKING RECORD

Section	Section TOTALS
Section 1	
Section 2	
Section 3	
MARKER SIGNATURE	TOTAL MARKS
MODERATOR SIGNATURE	



## Creative Design & Innovation

### Grade 11 General Sample - Term 2 - Answer Key

Where student responses may vary please use your professional judgment. Be reasonable and award marks ONLY when deserved for answers given.

Marks will be awarded as indicated on the examination paper. Specific mark breakdowns for questions will be written when necessary.

#### Section 1 – Multiple Choice

Question	Answer
1	B
2	D
3	A
4	D
5	C

#### Section 2 – True or False

Question	Answer
1	T
2	F
3	T
4	F
5	T

#### Section 3 – Core content

Question	Answer
1 – GAP FILL (5 marks)	a – Switch / b – sensing / c – load / d – current / e – sold
2a – Diagram (2 marks)	A – Multiplier B – Tolerance
2b – Diagram (1 mark each) = 4 marks total	Resistor A = 250K Ohms (250,000 Ohms) Resistor B = 970K Ohms (970,000 Ohms) Resistor C = 5600 Ohms (5.6 K Ohms) Resistor D = 572 Ohms
2c - Diagram (2 marks)	
2d - Diagram (2 marks)	Resistance = 9 divided by 100 = 0.09A
3 – Matching (2 marks each)	Digital signal = D / Analog signal = A / Bulb = E / GPU = C / Ohms = B

## SECTION 1 – Multiple choice

Choose and circle the correct answer – A, B, C or D.

(1 mark each)

*Example: An electrical component which opens or closes a circuit.*

- A. speaker
- B. bulb
- C. switch
- D. battery

1. Electrical circuits require the flow of \_\_\_\_\_.
  - A. newtons
  - B. electrons
  - C. protons
  - D. neutrons
2. What is an LED?
  - A. Light Even Diode
  - B. Light Engaged Diode
  - C. Light Emerging Diode
  - D. Light Emitting Diode
3. Analogue signals have \_\_\_\_\_ values.
  - A. infinite
  - B. limited
  - C. defined
  - D. additional
4. Digital signals use \_\_\_\_\_.
  - A. 1's & 2's
  - B. -1 & 0
  - C. -1 & +1
  - D. 0's & 1's
5. Which letter represents current in Ohm's Law?
  - A. C
  - B. V
  - C. I
  - D. O

## SECTION 2 – True or False

Choose and circle the correct answer TRUE or FALSE.

(1 mark each)

*Example:*

- An input is information or data entered in a system

TRUE

FALSE

- Continuity mode on a Multimeter uses a diode symbol

TRUE

FALSE

- A Multimeter can measure Watts

TRUE

FALSE

- A microcontroller is a single chip microcomputer

TRUE

FALSE

- A microcontroller only uses RAM memory

TRUE

FALSE

- Processing is a series of actions leading to a result

TRUE

FALSE

/ 5

## SECTION 3 – Core content

1 – Complete the sentences below using ONE word for each.

Do not use the same word for more than one answer. TWO words will NOT be used.

coil	load	current	solid	switch	driver	sensing
------	------	---------	-------	--------	--------	---------

- A relay is an electromagnetic \_\_\_\_\_.
- Every relay has a \_\_\_\_\_ unit.
- In a relay there is a control circuit and a \_\_\_\_\_ circuit.
- The control circuit controls the \_\_\_\_\_ in the other circuit.
- A \_\_\_\_\_ state relay is made from semiconductor materials.

/ 5

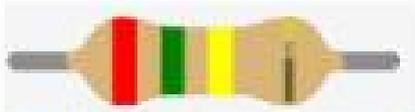
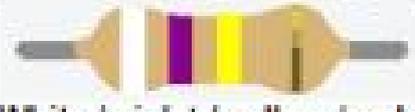
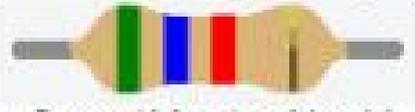
2a – Identify columns A & B shown in the resistor colour code table below. (2 marks)

1 <sup>st</sup> Digit	2 <sup>nd</sup> Digit	3 <sup>rd</sup> Digit	A	B
0	0	0	1	1%
1	1	1	10	2%
2	2	2	100	
3	3	3	1000	
4	4	4	10000	
5	5	5	100000	
6	6	6	1000000	
7	7	7		
8	8	8		
9	9	9	0.1 Ohm 0.01 Ohm	5% Gold 10% Silver

Colour Code Table

A	
B	

2b – What are the values of the resistors shown below. (4 marks)

 Red / green / yellow / gold	A	
 White / violet / yellow / gold	B	
 Green / blue / red / gold	C	
 Green / violet / red / black / red	D	

2c – In the box below write the formulae used to calculate Ohm's Law. (2 marks)

2d – Calculate the current flowing through the resistor in this circuit using Ohm's Law.



(2 marks)

/ 10

3 – Match the words with their definition or image.

(5 marks)

Write the matching letter in the correct box. The first one has been done for you.

TERM / COMPONENT	Symbol letter	SYMBOL / COMPONENT	
1. Battery	F		A
2. Digital signal		$\Omega$	B
3. Analog signal		Central computer chip which acts as a brain in a system.	C
4. Bulb			D
5. CPU		A source of light energy	E
6. Ohms		An electrical DC power source.	F

/ 5

You have now finished the examination.

**TOTAL**  
 / 30