STUDENT SECTION

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

Computer Science

Grade 11

Sample - Term 1

Date: November 2017

Time: TBC

Duration: 35 minutes

FOR ADMIN ONLY

MARKING RECORD

Section	Section TOTALS
Section 1	
Section 2	
Section 3	
Section 4	
Section 5	
MARKER SIGNATURE	TOTAL MARKS
MODERATOR SIGNATURE	

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.

STUDENT INSTRUCTIONS –
Students must attempt **all** questions
For this examination, you must have:
1. An ink pen – blue.
2. A pencil.
3. A ruler.

SECTION 1 – Multiple choice

Choose and circle the correct answer – A, B, C or D. (2 marks each)

Example: The basic number system in all computers is the_____

A. binary
B. denary
C. hexadecimal
D. octal

1. The _____ is **not** a part of Internet of Things

   A. sensors
   B. internet
   C. economy
   D. software

2. The ability to be **more** productive and saleable is called as _____.

   A. employee productivity
   B. customer satisfaction
   C. employee feedback
   D. cost productivity

3. Which **loop** is used by IoT device to provide the real-time information?

   A. do
   B. feedback
   C. while
   D. for

4. **OT** stands for _____

   A. operating trend
   B. other trade
   C. operational thread
   D. operational technology

5. A farm does not need a _____ sensor.

   A. light
   B. moisture
   C. pressure
   D. temperature

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SECTION 2 – True or False

Choose and circle the correct answer TRUE or FALSE.   **(1 mark each)**

Example:
- *Throughput is the measure of bits transfer across the media*   TRUE   FALSE

1. The IoT **increases** customers relationships in a business.   TRUE   FALSE

2. A **process** uses inputs to execute the right actions.   TRUE   FALSE

3. The bio-sensors **cannot** sense the stress levels.   TRUE   FALSE

4. A coffee maker is an example for **closed-loop** system.   TRUE   FALSE

5. An Arduino microcontroller requires **less** power than Raspberry Pi.   TRUE   FALSE

6. The IoT does **not** require secure a reliable network infrastructure.   TRUE   FALSE

7. A controller **cannot** collect data from a sensor.   TRUE   FALSE

8. In a **flow chart** decision symbols are used for a question.   TRUE   FALSE

9. The **router** acts as an interface between local network and internet.   TRUE   FALSE

10. Th open loop control systems **use** the feedback.   TRUE   FALSE

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SECTION 3 – Matching

Match the terms with its explanations. Write the matching letter in the correct box.
The first one has been done for you.   **(2 marks each)**

Terms   ## Explanations

| Terms		Explanations	
• **Example** Bit	F	Represents the smallest piece of data.	F
1. ARPANET		LED bulbs that allow consumers to control lighting using tablets or smartphones.	A
2. Raspberry Pi		Collection of input, action and output that achieves specific results.	B
3. Philips		A network that became the beginning for Internet.	C
4. Process		A core of an organization affected by IoT.	D
5. Supply		A controller used by hobbyist and professionals.	E

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SECTION 4 – Drawing

Scenario: A **automatic water heater** control system is set to desired temperature. When switched ON, the system can detect the water temperature and automatically adjust the water temperature to the desired temperature.

4.a   Complete the process diagram for the given scenario.

- Draw the **flow arrows**   (**2 marks**)

- Draw boxes and write the job of a **controller, plant and a sensor** for the automatic water heater control system.   (**6 marks**)

Desired water Temperature

Current water Temperature

CONTROLLER   **PLANT**

Input   Error   Output

Control

Measured
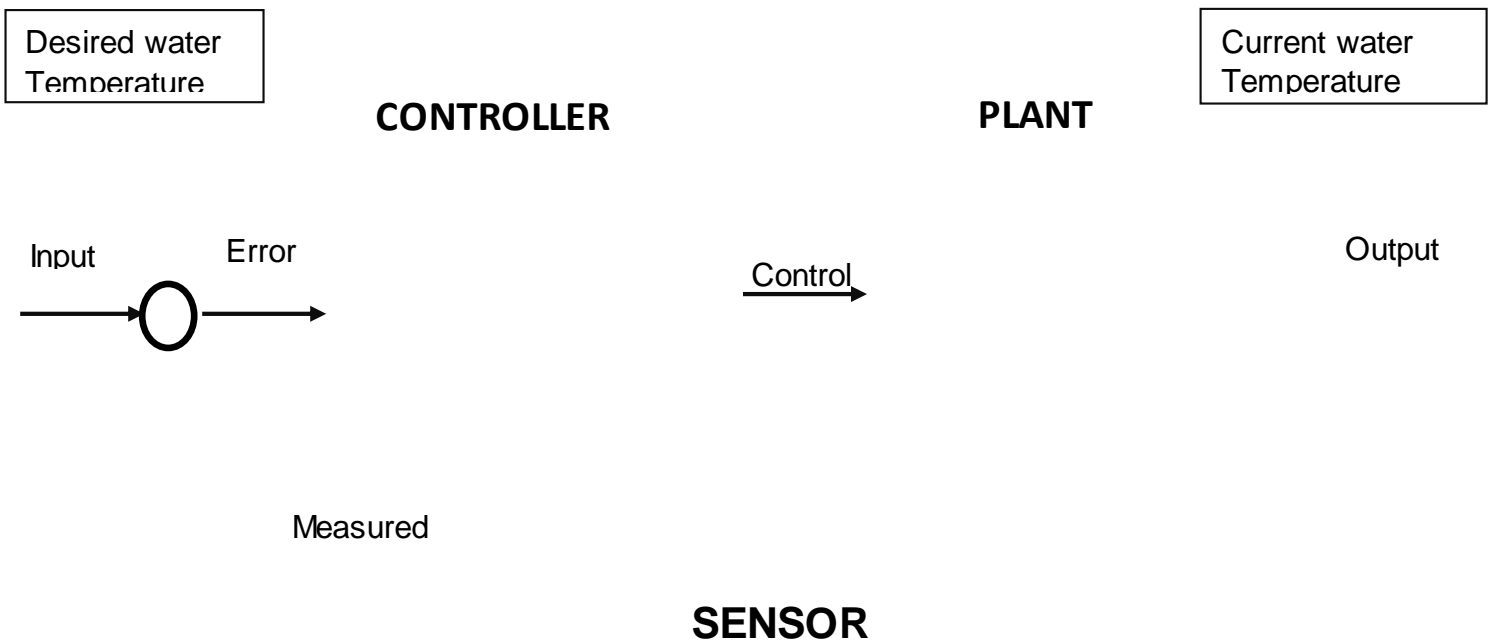
SENSOR

4.b   Identify the Automatic **Water Temperature** classification and **circle** the correct answer

- **Open-loop / Closed-loop** control systems   (**2 marks**)

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SECTION 5 – Short Answer Questions

1.a.   Explain the **use** of any **one** sensors for a modern clothes washing machine.

_____

_____**(2 marks)**

1.b.   Explain the **three** types of actuators.

_____

_____

_____

_____**(3 marks)**

2.a.   What is an Internet of Things?

_____

_____**(1 mark)**

2.b   Explain **how** sensor and internet connection are used in "Wear the IoT".

_____

_____

_____

_____

_____**(4 marks)**

End of Examination

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TOTAL

/ 50