

St Edward's College Malta

Mid-Year Examinations February 2020



Year 9

Computing

Time: 2 hours

**Name and
Surname**

Instructions to Students:

1. Do not open this examination paper until instructed to do so.
2. Write your name and surname on this page.
3. Read all instructions and questions carefully.
4. Answer ALL questions in the spaces provided.
5. Diagrams must be drawn in pencil.
6. Leave the last 10 minutes for revision of paper.

For teacher's use only

Mr E. Attard Cassar

Question	1	2	3	4	5	6	7	8	9	10	11	12	Total
Obtained													
Allotted	10	6	9	8	7	11	6	10	6	11	9	7	100

1. This question is about number representation

a. Fill in the table. Numbers in each row are the same.

Decimal	Binary	Hexadecimal
57		
	10011100	
		3D

[6]

(for working)

b. Why do we study **binary numbers** in computing?

_____ [1]

c. Why do we study **hexadecimal** numbers?

_____ [1]

d. Perform the following binary **addition** and **subtraction**:

$$\begin{array}{cccccccc} 1 & 0 & 0 & 1 & 1 & 0 & 1 & + & 1 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & - \\ & 1 & 0 & 1 & 0 & 0 & 1 & & & 1 & 0 & 1 & 0 & 1 & 0 & 1 & \end{array}$$

[2]

2. For each term in the left column of the table below draw a line to the correct definition on the column on the right.

program	Programs required for the running of the computer system.
computer	A sequence of instructions.
operating system	A program that acts as the manager of the computer system.
system software	This computer forms a small part of a larger system.
applications software	A processor of information.
embedded computer	Programs for the user's need.

[6]

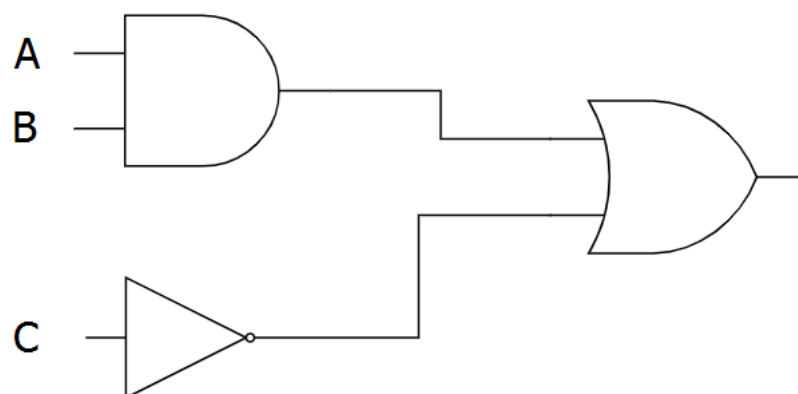
3. This question is about logic circuits.

a. Draw the logic gates of the AND, OR and NOT operations.

[3]

b. Write the **Boolean expression** of the following circuit diagram.

_____ [2]



c. Draw the **truth table** of the above circuit diagram. [3]

4. List **two features** of the following software applications:

a. Word processor

[2]

b. Spreadsheet

[2]

c. Database management system

[2]

d. Web browser

[2]

e. Presentation software

[2]

5. Look at the program below and answer the questions that follow:

1	public class AreaTria
2	{
3	public static void main (String[] args)
4	{
5	System.out.print ("Enter the base: ");
6	double base = Keyboard.readDouble();
7	System.out.print ("Enter the height: ");
8	double height = Keyboard.readDouble();
9	double area = 0.5*base*height;
10	System.out.println ("The area is " + area);
11	}
12	}

a. What is the **name** of this **class**?

[1]

b. Which lines show **input** instructions?

[2]

c. Which lines show **output** instructions?

[2]

d. Which line shows **processing**?

[1]

e. Which are the **variables** used in this class?

[3]

6. Answer the following questions on networks.

a. What do we mean by a **network**?

_____ [1]

b. Name **two advantages** of networks.

_____ [2]

c. One particular type of network is called Client-Server network. What do we mean by **Client** and **Server**?

_____ [2]

d. One type of **server** is a File Server. Name another two.

_____ [2]

7. Choose terms from the ones given here to fill in the following sentences. The words are: **secondary storage, ROM, cache, primary storage, fetch-execute cycle, buses, CPU.**

a. _____ are used to carry information from one place to another. [1]

b. Hard disks and tapes are two types of _____. [1]

c. While a program is being executed it must be present in the _____ . [1]

d. The ALU is found inside the _____. [1]

e. The bootstrap loader is found inside the _____. [1]

f. The process followed by the CPU is called the _____. [1]

8. This question is about flowcharts, pseudocode and Java.

a. What do **Flowcharts** and **Pseudocode** have in common?

[1]

b. Take a note of the following pseudocode and then answer the questions.

```
{  
    Enter name of person1  
    Enter age of person1  
    Enter name of person2  
    Enter age of person2  
    if (age of person1 > age of person2)  
        then display (name of person1)  
    if (age of person1 < age of person2)  
        then display (name of person2)  
}
```

i. In the program, what type would **age of person1** have?

[1]

ii. What type would *name of person2* have?

_____ [1]

iii. Write down one **condition** found in the above pseudocode.

_____ [1]

iv. Draw the **flowchart** of the above pseudocode. [5]

v. There is something missing in the program. What is it?

[2]

9. Join lines from the left column to the right column so that a term is associated with its meaning.

mainframe	It serves to enter data to a large computer and is also capable of doing some processing.
workstation	Terminals that are used when we buy something from a shop and pay by means of a card.
EFTPOS	A large and very fast computer that is used to run programs that require a lot of calculations.
intelligent terminal	A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
supercomputer	A computer that a user can carry wherever one goes.
laptop	A powerful, single-user computer, usually with a high-quality monitor.

[6]

10. Consider the following program in **Java**:

```
public class Progression
{
    public static void main (String[] args)
    {
        for (int i=6; i<=26; i=i+5)
        {
            System.out.println (i);
        }
    }
}
```

a. What is the **output** of the program?

[4]

b. What happens if instead of $i=6$ we have $i=7$?

[2]

c. Write a program using the for-loop that outputs the following:

4
8
12
16
20

[5]

11. This question is about some technical terms.

a. Explain the terms **serial access** and **direct access**.

_____ [2]

b. What does **2GHz** represent?

_____ [1]

c. What do we understand by **validation** and **verification**?

_____ [2]

d. Distinguish between **hard copy** and **soft copy**.

_____ [2]

e. How many bytes does **4MB** represent?

_____ [2]

12. Suppose part of **RAM** is as shown here:

Address	Content
12289	7
12290	34
12291	-9
12292	22
12293	60
12294	22
12295	48
12296	11

RAM

- a. RAM receives the following information: 45 on the **data bus**, 12292 on the **address bus** and **Write** on the **control bus**. What changes will occur in the above diagram?

[1]

- b. Now suppose the received information is 12295 on the **address bus** and **Read** on the **control bus**, what will RAM do?

[2]

- c. Explain the role of the **Memory Data Register** and the **Address Data Register**.

[2]

- d. If the address bus has **width** 16, how many locations does RAM have?

[2]