

Annual Examinations for Secondary Schools 2017

YEAR 11

COMPUTING

TIME: 1h 45min

Name: _____

Class: _____

Directions to Candidates:

Answer ALL questions in Section A and Section B on this paper;

The use of flow chart template is permitted;

Calculators are NOT allowed;

Good English and orderly presentation are important.

For office use only:

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Paper Total	Course Work	Final Mark
Max	5	5	5	5	5	5	5	5	5	5	5	15	15	85%	15%	100%
Mark																

Section A

1. For each **secondary storage**, tick (✓) whether they are magnetic, optical or electronic media.

		Magnetic	Optical	Electronic	
a.	Pendrive				[1]
b.	Hard disk				[1]
c.	CD-ROM				[1]
d.	Tape				[1]
e.	DVD-ROM				[1]

2. For each **computer logic** statement, state if it is **True** or **False**.

a.	1KB is equivalent to 1024 bytes		[1]
b.	An analogue device can measure continuous information		[1]
c.	2^{30} bytes is the same as 1TB		[1]
d.	A mercury thermometer is an example of a digital device		[1]
e.	1024 megabytes is equal to 1GB		[1]

3. The statements below describe an **Input/Output** device. Name the device which describes each statement.

a.	This is a cursor control device found in notebook computers, located in the middle of the keyboard		[1]
b.	This type of printer is an impact printer		[1]
c.	This printing device is used to print vector graphics		[1]
d.	This device is used by banks to ease the processing of cheques		[1]
e.	This device utilises a light-sensitive detector to select objects on a screen		[1]

4. Convert the given numbers to the required equivalent bases.

a.	11001_2 to base 16		[1]
b.	203_{10} to base 2		[1]
c.	$A3_{16}$ to base 10		[1]
d.	11001010_2 to base 10		[1]
e.	193_{10} to base 16		[1]

Space for working:

5. This question is about **main memory**:

a. Which two types of memory technologies form the main memory?

Names: _____ [1]

b. State the **difference** between the two memories.

Difference: _____
_____ [2]

c. Name a **software** which can be found in each memory (**indicate clearly the software and the memory associated with it**).

_____ [2]

6. The fetching of an instruction from memory and its execution is known as the **fetch-execute cycle**. Complete the following statements which describe the fetch-execute cycle.

a. CU fetches the _____ from memory location indicated by PC

b. CU places opcode in _____

c. CU fetches any required _____

d. CU _____ PC to point to next instruction

e. CU activates necessary circuits to _____ instruction

f. Go back to step 1

[5]

7. a. Why are **truth tables** used in logic circuits?

[1]

- b. Study the truth table below and:
- i. Draw its equivalent **logic circuit**
 - ii. Extract the Boolean expression

A	B	C
0	0	0
0	1	1
1	0	1
1	1	0

i. Logic circuit:

[3]

ii. Boolean Expression _____ [1]

8. a. Give the name of three **transcription (data-entry) errors**, and using the word 'COMPUTER' give an example for each error. [3]

1st Error: _____

Example: _____

2nd Error: _____

Example: _____

3rd Error: _____

Example: _____

b. Differentiate between **verification** and **validation**. [2]

Verification:

Validation:

9. a. Using **Two's Complement** (2C) with 8 bits, convert, [4]

i. To binary:

- 99_{10}
- -111_{10}

99_{10} :

-111_{10} :

ii. To decimal:

- 11000011_2
- 01110101_2

11000011_2 :

01110101_2 :

b. Binary add: $10110 + 01111 + 11111$ [1]

Answer:

Working Space:

10. One use of **spreadsheets** is in budgeting.
- Why are spreadsheets better for budgeting than a word-processor?
 - Give another application where spreadsheets can be used.
 - Define and give an example of a label in spreadsheets.
 - Apart from representing data in tabular form, name another way how data can be presented in spreadsheets.
- [5]

a. **Answer:** _____

b. **Application:** _____

c. **Define:** _____

Example:

d. **Name:** _____

11. **Real-time** and **batch**, are two types of operating systems (OS).
- Give an example of an application where a **critical** real-time OS is used.
 - A characteristic of a real time system is that it supports non-sequential application programs. Give **two** other characteristics.
 - Give an application where batch processing can be used.
 - A batch OS can manage a great number of utilities. When used in large computers it can also manage other things. Give an example of what else it can manage.
- [5]

a. **Example:** _____

b. **1st characteristic:** _____

2nd characteristic: _____

c. **Application:** _____

d. **Example:** _____

Section B

12. **Systems Analysis** (system life cycle) is the study, design and implementation of a new computerised system performed in various steps.

a. What is the person that carries out systems analysis called?

Person: _____ [1]

b. A DVD rental shop is considering changing the current manual system into a computerised one.

Give the name of each of the **seven** steps of systems analysis, and in each step give an example what is done in the DVD rental shop case study. [14]

Step 1: _____

Example: _____

Step 2: _____

Example: _____

Step 3: _____

Example: _____

Step 4: _____

Example: _____

Step 5: _____

Example: _____

Step 6: _____

Example: _____

Step 7: _____

Example: _____

13. a. In programming what is a **looping** construct? [1]

Looping: _____

b. The **for** loop is one of the iterations used in Java, and is used when predetermined number of repetitions are known before the loop starts executing.

i. **Name** the other **two** iterations used in Java and **explain** the difference between the two iterations.

ii. Using the two named iterations in (i.) write two separate program snippets in Java to display the first ten integers i.e. from 1 to 10 on the screen. [8]

i. **Name:**

Explanation: _____

Name: _____

Explanation: _____

ii. **Name of iteration 1:** _____

Snippet:

Name of iteration 2: _____

Snippet:

c. **Name** the **three addressing modes** used in assembly and for each addressing mode give an **example**. [6]

Name 1: _____

Example 1: _____

Name 2: _____

Example 2: _____

Name 3: _____

Example 3: _____