

# JUNIOR LYCEUM ANNUAL EXAMINATIONS 2009

Directorate for Quality and Standards in Education  
Educational Assessment Unit

FORM 3 (Option)

COMPUTER STUDIES

TIME: 1h 30min

Name: \_\_\_\_\_

Class: \_\_\_\_\_

## Directions to Candidates:

Answer **ALL** questions in **Section A** on this paper;  
Answer **ALL** questions from **Section B** on separate foolscaps;  
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 - Answer all Questions

- 1 (a) Fill in the table below to obtain the conversion of each number in binary (8 bits), hexadecimal and decimal.

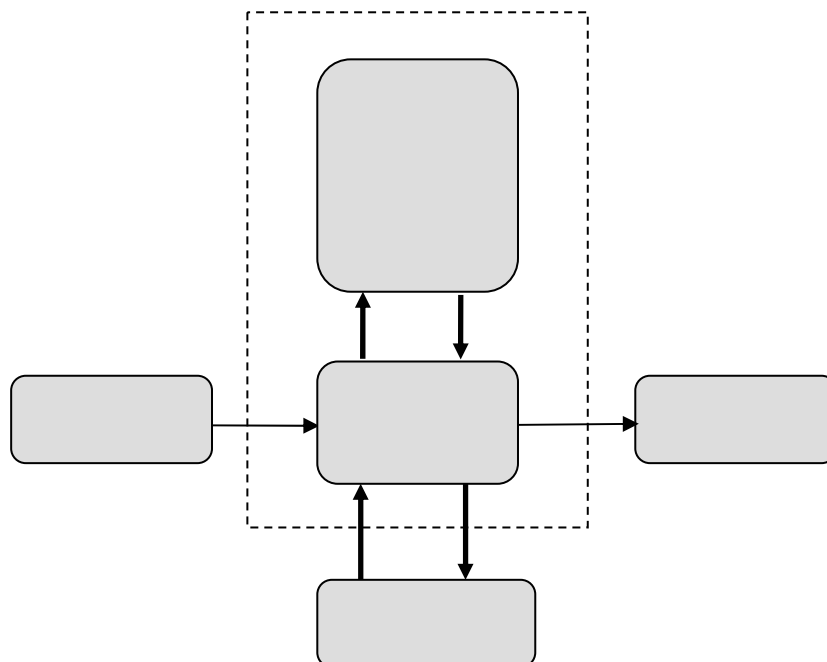
Binary	Hexadecimal	Decimal
1 1 0 0 0 0 0 1	=	=
	= A3	=

Working Space:

- (b) Write the **largest 8-bit binary** number in the following box:

- 2 Use the following five terms to label the **block diagram** of a computer system shown below.

**CPU, Output Device, Secondary Storage Device, Input Device, Central (main) Memory.**



- 3 (a) Data can be either **digital** or **analogue**. Briefly explain the difference between both types and give an example of a device (or process) for each type of data.

**Digital:** \_\_\_\_\_  
 \_\_\_\_\_

**Example:** \_\_\_\_\_

**Analogue:** \_\_\_\_\_  
 \_\_\_\_\_

**Example:** \_\_\_\_\_

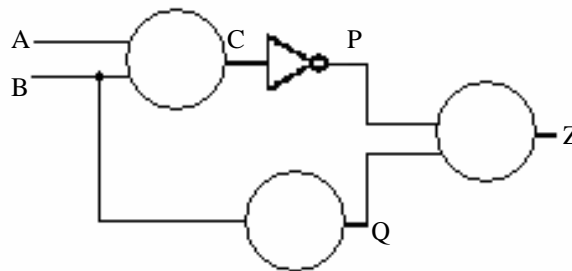
[4]

- (b) Why is it important to have a **standard coding system** (such as the **ASCII** code) with microcomputers?

**ASCII:** \_\_\_\_\_  
 \_\_\_\_\_

[1]

- 4 Study the following incomplete **logic circuit** and its incomplete **truth table** and then answer the questions below.



A	B	C	P	Q	Z
0	0				
0	1	1	0	0	
1	0		0	1	0
1	1				

- (a) **Label the gates** that are represented by the three circles in the circuit.  
 (b) **Complete the truth table** so that it matches the logic circuit.

[5]

- 5 (a) What do the acronyms **RAM** and **ROM** stand for?

**RAM:** \_\_\_\_\_

**ROM:** \_\_\_\_\_

[2]

- (b) Mention **three** main differences between RAM and ROM.

**1<sup>st</sup> Difference:** \_\_\_\_\_  
 \_\_\_\_\_

**2<sup>nd</sup> Difference:** \_\_\_\_\_

3<sup>rd</sup> Difference:

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[3]

- 6 The phrases below describe **five input devices**. In the space provided write down the name of the input device.

Reads magnetic printing:

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Converts printed characters into electronic signals:

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Reads pen/pencil marks on pre-printed forms:

---

A special keyboard with raised dots rather than characters:

---

Converts a photo into digital format:

---

[5]

- 7 (a) **Browser** and **Search Engine** are two Internet related terms. Briefly distinguish between both terms.

**Browser:**

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**Search Engine:**

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[2]

- (b) i. What does the acronym **URL** stand for?  
ii. What is a URL?

i. **URL:**

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ii. **Description:**

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[2]

- (c) Briefly explain the use of **Bookmarks** when using the Internet.

**Bookmarks:**

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[1]

- 8 **Secondary storage devices** may be divided in three categories, depending on their read/write technology.

- i. What are the three **categories** called?  
ii. Mention one **example** of a device for each category.  
iii. Explain briefly how **data is stored** in one named category.

i. **Categories:**

1.

2.

3.

ii. **Example category 1:**

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**Example category 2:** \_\_\_\_\_

**Example category 3:** \_\_\_\_\_

iii. **Name of category:** \_\_\_\_\_

**How data is stored:** \_\_\_\_\_

[5]

- 9 (a) i. NTFS is a disk filing system. Give the name of another **disk filing system**.  
 ii. Write down two **items of information** that are kept in a disk filing system.

i. **Filing system:** \_\_\_\_\_

ii. **Item 1:** \_\_\_\_\_

**Item 2:** \_\_\_\_\_

[3]

- (b) i. Briefly explain the term **access time** as used in disk drives.

**Access time:** \_\_\_\_\_

- ii. Use the word *short* or *long* to complete the following sentence:

A disk drive with a **large** access time means that it takes a \_\_\_\_\_ time to fetch/store data.

[2]

10

Give the names of the **output devices** described below.

Produces vector images on (usually) paper: \_\_\_\_\_

Delivering a presentation to a large audience: \_\_\_\_\_

May produce multiple carbon copies of an invoice: \_\_\_\_\_

Produces a softcopy of the computer's output: \_\_\_\_\_

Produces hardcopy output as embossed dots: \_\_\_\_\_

[5]

- 11 (a) **Disk format** and **Winzip** are two useful utilities when using the computer. Briefly describe both utilities.

**Disk format:** \_\_\_\_\_

**Winzip:** \_\_\_\_\_

[2]

- (b) **Table of contents**, **multi-columns** and **indexing**, are three features found in a **word-processor**. Briefly describe their use.

**Table of contents:** \_\_\_\_\_  
 \_\_\_\_\_  
**Multi-columns:** \_\_\_\_\_  
 \_\_\_\_\_  
**Indexing:** \_\_\_\_\_  
 \_\_\_\_\_

[3]

### Section B – Answer BOTH Questions

12

The school library has decided to change its operations from a manual system to a computerized system. The librarian decided to use a database to store the required information. S/he created two files, a **Book file** and a **Student file**. One field in the Book file consists of **unique book numbers** that were assigned by the librarian to the books. While one field in the Student file consists of **unique student numbers** that were also assigned by the librarian to identify each student.

- (a) Mention three other **fields** that you expect to find in the **Book file**. One field that you mention must be **text** data type, another **numeric** data type and the last one must be **date/time**. [3]
- (b) Besides the Student number field, mention three other fields that you expect to find in the **Student file**. The data type of one field must be **text**, another **numeric** and the last one **date/time**. [3]
- (c) Which field would you suggest to be the **key field (primary key)** in each file? [2]
- (d) Briefly explain how the librarian would identify those **students who have overdue books**. [3]
- (e) Give two **advantages** of using a computerized system when compared to the manual system. [2]
- (f) Give two **disadvantages** of implementing a computerized system. [2]

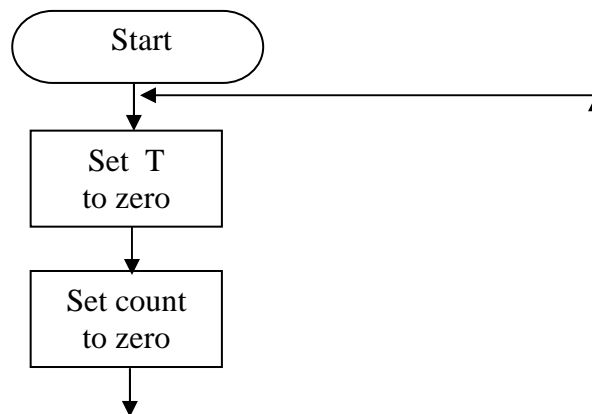
*Question 13 on the next page...*

13

The following drawing shows an incomplete flowchart intended for processing a set of examination marks. Copy and complete the **flowchart** such that it satisfies the following criteria.

*In your flowchart you may use the letters provided in parenthesis.*

- Prompt the user to enter the **subject title (S)**;
- Then prompt the user to enter the **number of students (N)** for that subject;
- Prompt again the user to enter the **marks (M)** for each student for that subject;
- Output the **subject title (S)**, the **total (T)** of all the **marks** entered and the **average mark (V)**;
- Lastly ask the user if s/he wants to **repeat** the same process for another subject.



[15]

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End of Paper

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