

JUNIOR LYCEUM ANNUAL EXAMINATIONS 2007

Educational Assessment Unit – Education Division

FORM 3 (Option)

COMPUTER STUDIES

TIME: 1 hr 30 min

Name: _____

Class: _____

Directions to Candidates:

Answer ALL questions in Section A on this paper;

Answer any TWO 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	14	Paper Total	Course Work	Final Mark
Max	5	5	5	5	5	5	5	5	5	5	5	15	15	15	85%	15%	100%
Mark																	

Section A - Answer all Questions

- 1 Tick (✓) to show whether the devices given below are input or output. For each device select the most suitable application from the following list:

Word-processing, Cheque processing, Preparing invoices, Pointing Applications, POS(Point Of Sale), CAD (Computer Aided Design)
The first one has been provided as an example to help you answer this question.

Device	Input	Output	Application
Mouse	✓		Pointing Applications.
MICR			
Plotter			
Dot Matrix Printer			
Bar Code Reader			
Keyboard			

[5]

- 2 **Format, Scandisk, Defrag, Antivirus and Winzip** are five useful **utilities** in the computer. Briefly explain the main function for each utility.

Format:

Scandisk:

Defrag:

Antivirus:

Winzip:

[5]

- 3 (a) What is a **Logic Gate**?

Logic Gate:

[1]

- (b) What do we mean by the **2-states** of a logic gate?

2-states:

[1]

- (c) One common gate used in computers is the AND gate. Give the **names** of the other **two** gates.

Gates: _____

[1]

- (d) What is the purpose of a **Truth Table**?

Truth Table: _____

[1]

- (e) In the space provided below draw the truth table for the **AND** gate.

Space for Truth Table:

[1]

- 4 (a) i. What is the name of the **standard character coding system** used in microcomputers?

Name of code: _____

[1]

- ii. Why is it important for microcomputer systems to **use the same** standard character coding system?

Reason: _____

[1]

- (b) i. What is the difference between an **Analogue device** and a **Digital device**?
ii. Give an example of an analog device and another of a digital device.

Analogue vs. Digital: _____

Example Analogue: _____

Example Digital: _____

[3]

- 5 (a) i. Although a computer system has the Central (Main) Memory, **Secondary Storage** is a necessity with computers. Why do computers need secondary storage?

Reason: _____

[1]

- ii. A secondary storage medium can be one of three different types. One type is the **magnetic medium** and the **floppy disk** is an example of such a medium. Name the other **two** types of media and provide an **example** of each type.

1st type and example: _____

2nd type and example: _____

[2]

- (b) List **two** main differences between **RAM** and **ROM**.

1st difference: _____

2nd difference: _____

[2]

- 6 (a) A **word processor** is very useful in an office. **Name** and **briefly describe** two ways how a word processor helps a clerk to carry out his/her work better in the office.

1st help: _____

2nd help: _____

[2]

- (b) With reference to word processing explain briefly the terms: **Table of Contents**, **Indexing** and **Spell Checker**.

Table of Contents: _____

Indexing: _____

Spell Checker: _____

[3]

- 7 Fill in the table below to obtain the conversion of each number in **binary**, **hexadecimal** and **decimal**.

Binary	=	Hexadecimal	=	Decimal
1 1 1 1 0 0 0 0	=		=	
	=	A0	=	
	=		=	201

[5]

- 8 The incomplete spreadsheet below shows some data for a **payroll** system for a particular week for three employees. An employee must work a minimum of 40 hours per week. Any additional hours worked are the overtime hours.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	Surname	Mon	Tue	Wed	Thu	Fri	Total Hours	Overtime Hours	Payment @ Lm1.50	Overtime Payment @ Lm2.50	Total Due
2	John	Abela	10	8	12	8	8					
3	Steve	Curmi	8	8	8	12	12					
4	Marija	Said	8	8	8	8	8					
5												

Read through the following information that explains the spreadsheet columns:

- Columns C, D, E, F and G show the Number of hours worked on a day to day basis.
- Column H is to store the Total number of hours an employee has worked during the week
- Column I would be used for the overtime hours (if any) for each employee.
- Column J would hold the payment for the normal standard 40 hours. This is calculated at the rate on Lm1.50 per hour.
- Column K represents the overtime payment, calculated at the rate of Lm2.50 per hour.
- Column L would be used to store the Total amount of money each person would receive at the end of the week.

Write down the formulas that you should type in the cells given below.

H2: _____

I2: _____

J2: _____

K2: _____

L2: _____

[5]

- 9 (a) i. A certain application allows graphics to be stored either as a **vector image** or a **raster image**. Explain the difference between them.

Vector Image: _____

Raster Image: _____

[2]

- ii. Write down the name of an **output** device which gives a raster image and another output device providing a vector image.

Vector Output Device: _____

Raster Output Device: _____

[2]

- (b) Explain briefly how an image is displayed on a **CRT**.

CRT: _____

[1]

- 10 (a) i. List an **advantage** and a **disadvantage** of **speech recognition**.

Advantage: _____

Disadvantage: _____

[2]

- ii. How can speech output help a person with special needs?

Help: _____

[1]

- (b) In relation to peripheral devices, explain when **buffering** is required.

Buffering: _____

[2]

- 11 Draw a **flowchart** to enable a user to input a month in **numeric** format, i.e. January = 1, February = 2 ... December = 12 and then outputs the number of days in the inputted month. This process is repeated until the value of 0 is given for the month. Assume that February has always 28 days.

[5]

Section B – Answer any TWO Questions

- 12** (a) What is a **Database**? [1]
- (b) Differentiate between a **field** and a **record**. [2]
- (c) What is a **relational** database? [1]
- (d) A DVD rental shop was advised that with the amount of clients and DVDs available it was better for him to computerize his system. It was suggested to use relational databases and create three files: **DVDs** file, **Clients** file and **Transactions** file.
- i. Suggest **three** important **field names** with their **data type** that you would expect to find in the DVDs file.
- ii. Suggest **three** important **field names** with their **data type** that you would expect to find in the Clients file.
- iii. What is the purpose of the **Transaction** file?
- iv. Which **two** fields, one from the DVDs file and the other from the Clients file, would be used to relate (link) these two files with the Transaction file?
- v. A database can be used to obtain the records for particular clients from a particular town only. What is this **feature** called? Briefly describe how this is done. [11]

- 13 (a) i. What is the **Internet**?
 ii. Give **two advantages** and **two disadvantages** when using the Internet.
 iii. Briefly describe the following Internet-related terms:
- **Web Browser**
 - **URL**
 - **Search Engines**
- [11]
- (b) i. What is the **Windows Explorer** used for?
 ii. The items in Windows Explorer are organized in a **tree structure**. What is the meaning of **tree structure**?
 iii. The Folder **Computer**, contains two sub-folders **Computer Studies** and **ICT**. While the sub-folder Computer Studies contains 3 sub-folders: **Form 3, Form 4** and **Form 5**. Draw the tree structure of such a layout and label the items.
- [4]
- 14 (a) **Algorithm, Structure Chart** and **Pseudo-code** are terms used when designing a solution to a problem. Briefly define the **three** terms. [3]
 (b) Draw the flowchart for the following problem:

A teacher wants to process the examination marks for a group of students. She has to input the **name** and the **mark** (out of 100) for the students. For each name and mark entered, the output required is the **name** of the student, followed by the message '**Fail**', '**Pass**' or '**Distinction**'. The pass mark is 45 and the minimum mark for distinction is 85.

The number of students in the group is unknown and therefore inputting the value -1 for the mark is used to terminate the input. At the end, the percentage of students in each category should be output (for example, Fail 20%, Pass 70%, Distinction 10%).

Hints:

- The **total** number of students inputted must be recorded
 - The amount of students in each category must be recorded
 - The percentage (for example in the Fail category) is calculated as follows:
 $(\text{Amount of students in Fail category} / \text{Total number of students}) * 100$
- [12]