

JUNIOR LYCEUM ANNUAL EXAMINATIONS 2007

Educational Assessment Unit – Education Division

FORM 5 (Option)

COMPUTER STUDIES

TIME: 1 hr 45 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 (a) Distinguish between: **Batch Operating Systems, Real-Time Systems and Time-Sharing Operating Systems.**

Batch:

Real-Time:

Time-Sharing:

[3]

- (b) Name **Two** examples where **real-time** computer systems are used.

1st Example:

2nd Example:

[2]

- 2 (a) **High Level Languages** and **Low Level Languages** are the two types of computer languages. Distinguish between the two types of languages.

High Level Languages:

Low Level Languages:

[2]

- (b) Give **two advantages** and **one disadvantage** for using a **Low Level Language**.

1st Advantage:

2nd Advantage:

Disadvantage:

[3]

- 3 (a) Who is the person responsible for the system life cycle?

Person:

[1]

- (b) **Investigation, Analysis, Design** and **Implementation** are four stages of the Development of a System. Briefly describe the **four** stages.

Investigation:

Analysis:

Design: _____

Implementation: _____

[4]

4 A company having several branches in various towns, was advised to adopt a network system.

(a) What is a **network**?

Network: _____

[1]

(b) Give an **advantage** and a **disadvantage** the company might have when adopting a network system.

Advantage: _____

Disadvantage: _____

[2]

(c) It was also suggested that the company makes use of electronic mail. Give **Two** advantages to justify this statement.

1st Advantage: _____

2nd Advantage: _____

[2]

5 The **Information System Manager, Computer Operator, Programmer, Data Clerk** and **Lab Technician** are five personnel found in an EDP Department. Give one **main** duty for each of the above mentioned persons.

Information System Manager: _____

Computer Operator: _____

Programmer: _____

Data Clerk: _____

Lab Technician: _____

[5]

- 6 (a) Programs written either in a Low Level Language or High Level Language must be **translated**. Give the name for a Low Level Translator and a High Level Translator.

Low Level Languages: _____

High Level Languages: _____

[2]

- (b) i. An instruction in the CPU is made of the **Opcode** and **Operand**. What is the difference between the two terms?

Opcode: _____

Operand: _____

[2]

- ii. Give any example of an instruction in Assembly language consisting of an **Opcode** and an **Operand**.

Instruction: _____

[1]

- 7 (a) What are **Loops** used for in programming?

Loops: _____

[1]

- (b) Give the name of **Two** loops used in Pascal.

1st Loop: _____

2nd Loop: _____

[2]

- (c) Draw the **generic flowchart** of one of the loops used in Pascal.

Space for flowchart

- 8 (a) Data stored in computers is open to various **threats**. Mention any **three** threats which one must be careful about when storing data in his/her computer.

1st threat: _____

2nd threat: _____

3rd threat: _____

[3]

- (b) **Copyright** and **Piracy** are two terms normally associated with software packages bought off-the-shelf. Briefly describe both terms.

Copyright: _____

Piracy: _____

[2]

- 9 (a) Why are **binary** numbers so useful in the study of computers?

[1]

- (b) Complete the table to show the same number in Binary, Hexadecimal and Decimal.

Decimal	Hexadecimal	Binary
139		
	A2	

[4]

- 10 (a) What are **Logic Gates** and what are they used for?

Logic Gates: _____

[1]

- (b) Draw the **logic circuit** for the following Boolean expression and hence draw up the corresponding truth table:

$$X = \text{NOT}(\text{NOT } A \text{ AND } (A \text{ OR } B))$$

Space for circuit

[2]

Space for truth table

[2]

- 11 (a) Flowcharting is one tool used in the **design** of a solution to a problem. Two other designing tools are **structure charts** and **pseudocode**. Define both terms.

Structure Charts: _____

Pseudocode: _____

[2]

- (b) Write a Pascal program which generates and displays successive powers of 2. The program should start by showing the number 2 and stop when the last number generated exceeds 1000. (In other words, your output should be 2, 4, 8, 16 ... 512.)

Space for program

[3]

Section B – Answer any TWO Questions

- 12** A large shop sells kitchen utensils, dining room utilities, tools and other items. Six salespersons serve the customers and two clerks work at the office to handle paperwork and other administrative work. All employees are supervised by a manager. The shop is about to buy one stand-alone computer system for the office, which, besides other tasks, will be used for payroll.
- (a) i. Suggest **three** other tasks which may be performed by the clerks with the computer system. [3]
 - ii. For each task explain what **data** needs to be inputted. [3]
 - (b) i. What will be the main **advantages** of the computer for the office staff? [2]
 - ii. What **disadvantages** might be encountered? [2]
 - iii. How can the new system affect the **privacy** of the shop employees? [2]
 - (c) It was suggested that a more complex system consisting of a number of terminals in the shop/office, would result in a more efficiently run shop. Give reasons **for** and **against** this suggestion. [3]
- 13**
- (a) “In the future keyboards will be obsolete as every computer will be able to use direct speech input.” State whether or not you agree with this statement, giving at least **two** reasons to justify your answer. [2]
 - (b) i. Why is it necessary to format a new disk before it can be used? [2]
 - ii. Describe how data is stored in a floppy disk. [2]
 - (c) i. State **three** differences between a floppy-disk and a hard-disk. [3]
 - ii. Apart from CD-ROMs, name **two** other media which are commonly used as secondary storage. [1]
 - (d) A photographer sells copies of his photos to newspaper publishers. The photographer stores the copies of the photos he sells on optical disks such as CD-ROMs.
 - i. Give **two** reasons why the optical disk is an appropriate medium. [2]
 - ii. State **one** major **advantage** of the use of optical disks for the photographer and another **advantage** for the publishers. [2]
 - iii. State **one** other method which the photographer can use to forward the photos to the publishers. [1]

14 (a) When a new program is being tested **three** types of errors may show up.

i. Name the **three** types of errors. [1]

ii. Use an example of each type of error to explain briefly how the errors may occur. [3]

(b) The flowchart on the right shows the design of a program which divides two numbers. The main steps have been numbered for reference.

i. What does Step 1 do? [1]

ii. What does Step 2 do? [1]

iii. In the program there is an error. Find the error and correct it. [2]

iv. What would happen if the program is left as it is? [2]

v. Write the program in Pascal with the error corrected. [5]

