JUNIOR LYCEUM ANNUAL EXAMINATIONS 2006

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 (a) The CPU is said to be the *brain* of the computer; two units found in the CPU are the **Control Unit (CU)** and **Arithmetic Logic Unit (ALU)**. Briefly explain the functions of the CU and ALU.

CU: _____

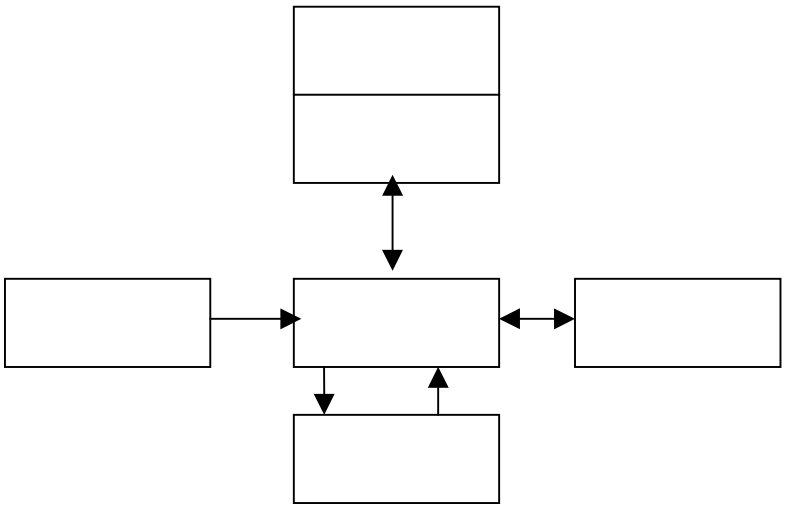
_____

ALU: _____

_____

[2]

(b) Using the terms: **Control Unit**, **Central Memory**, **Arithmetic Logic Unit**, **Input Device**, **Output Device** and **Secondary Storages**, label the diagram below which describes a basic computer.



[3]

2 (a) Storage media can be magnetic, optical or electronic. Give an example of each type together with its typical storage capacity.

	Device	**Size**
Magnetic		
Optical		
Electrical		

[3]

(b) The smaller the **access time** of a secondary storage device, the costlier is the device. What is meant by access time?

Access Time: _____

_____

[2]

3 New technologies gave people with special needs the opportunity to access the computer more easily.

(a) Name an **input** and an **output device** useful for people with special needs.

Input: _____

Output: _____

[2]

(b) For the input and output devices given above, explain how the devices may help these people with special needs.

Input: _____

_____

Output : _____

_____

[2]

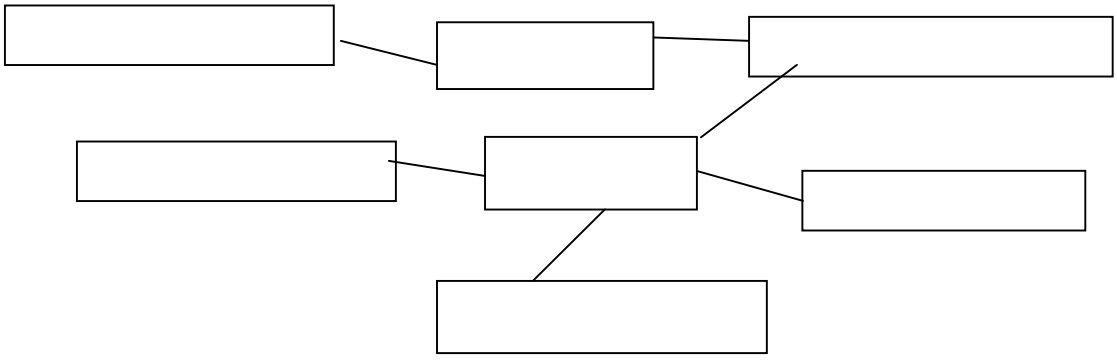
(c) Suggest how a blind person can read a typed document.

Answer: _____

_____

[1]

4 Master files are updated from time to time. The diagram below may describe the process for updating a Master file using the Transaction file. Fill in the boxes of the diagram using the words: **Transaction File**, **Sorting**, **Sorted Transaction File**, **Master File**, **New Master File**, **Updating** and **Error Report**.



[5]

5 (a) **RAM** and **ROM** are two components which make up the Central Memory. Give one major **difference** between the two and one typical **use** of the RAM and one of the ROM.

RAM: _____

Use: _____

ROM: _____

Use: _____

[4]

(b) Apart from the computer a ROM chip may be found in other appliances, mention **one** appliance where a Rom chip can be found.

Appliance: _____

[1]

6 (a) The keyboard is one of the most important input devices. An important application associated with the keyboard is word processing. For each of the peripherals in the table below, tick (✓) whether it is an **input** or **output device**, and for each give a suitable **application**.

Peripheral	Input	Output	Application
LCD Projector			
Digital Camera			
MICR			
Plotter			
Bar Code Reader			

[5]

7 Complete the table below to obtain a conversion of each number in binary, hexadecimal and decimal.

Binary								Hexadecimal	Decimal
1	1	0	0	1	1	0	1	=	=
								B3	=
								=	201

Working Space:

[5]

8 (a) Logic Gates are pieces of hardware used in Computers. Give **one** reason why logic gates are used in computers.

Use: _____

_____

[1]

(b) Draw the **symbols** and the **truth tables** for the **AND** and the **OR** gates in the spaces provided below.

Space for symbols:

AND	**OR**

AND		
A	**B**	**C**

OR		
A	**B**	**C**

[4]

9 (a) Most computers are **digital** machines. Explain the difference between a **digital** and an **analogue** signal (or data).

Digital: _____

_____

Analogue: _____

_____

[2]

(b) Apart from the computer other digital devices exist. Give an example of a digital device and an example of an analogue device.

Digital: _____

Analogue: _____

[2]

(c) The **modem** is a device which can convert digital signals to analogue and vice versa. Give a reason why analogue data must be converted to digital.

Reason: _____

_____

[1]

10 (a) One method of presenting the algorithm of a problem is a **flowchart.** What is a flowchart?

Flowchart: _____

_____

[1]

(b) A program must accept **three** numbers and then outputs their **average**. Draw the flowchart for this program.

Space for flowchart:

[4]

11 (a) The speed (or performance) of the computer can be affected by various factors. For example, a computer with a 512KB **cache** is faster than another computer with 256KB cache. Give **two** other factors that affect the speed of the computer.

1st factor: _____

2nd factor: _____

[2]

(b) Explain how **cache memory** helps in increasing the speed of a computer.

Cache Memory: _____

_____

[1]

(c) The speed of the CPU is much faster when compared with that of a printer.

i. What units are used to measure the speed of a **laser printer**?

ii. What type of memory do printers use to speed up their operations?

Units: _____

Memory: _____

[2]

Section B – Answer any TWO questions

12 (a) **Format**, **Defragmentation** (Defrag) and **File compression** (Winzip) are three useful utilities for the running of computers. Briefly explain what these three utilities do. [6]

(b) Access to the Internet is now available in many homes.

i. Give **three** different uses of the Internet at home. [3]

ii. What do the letters **URL** stand for? [1]

iii. What is a URL used for? [1]

iv. How does a **browser** differ from a **search engine**? [2]

v. It is common practice to save web sites that are visited frequently. What is the actual term for saving a web site? [1]

vi. Give an **advantage** for saving such web sites. [1]

13 A primary school has decided to keep information about the students in a computer database.

(a) **Four** items of information kept in the database are: **Name and Surname**, **DOB (date of birth)**, **Gender (M/F)** and **Age**. Copy and complete the table below by including the **data type** and the **size/format** for each field. [4]

Field Name	Data Type	Size/Format
Name and Surname		
DOB		
Gender (M/F)		
Age		

(b) It was suggested that one of the fields will become useless after a certain period of time. Which field will become useless? Give a reason for your answer. [2]

(c) Someone else suggested that another field should be split in two fields.
   i. Which field should be split? [1]
   ii. Give a reason why it is better to split up this field. [1]

(d) Suggest **three** other important fields which would be useful to the school administration. For each field include its **data type** and the **size/format**. [3]

(e) i. What is a **key field**? [1]
   ii. Which field would be the most suitable key field for this database? [1]

(f) Another table with the students' exam marks is being created. An advantage of databases is not to have duplicate information.
   i. What is meant by **relational databases**? [1]
   ii. Which field would you use in this second table to access information from both tables? [1]

14 (a) What purposes does a **word processor** serve? [2]

(b) The features below belong to a word processor. Explain briefly what they do:
   i. Table of Contents [1]
   ii. Indexing [1]
   iii. Headers and footers [1]
   iv. Text Centering [1]

(c) Spreadsheets can be used for calculating balance sheets in business. The table below shows part of a spreadsheet which calculates the profit earned by a particular grocery.

	A	B	C	D	E	F
1	Goods	Cost Price	Selling Price	Profit	Items Sold	Total Profit
2	Milk	0.24	0.26		15	
3	Drinks	0.31	0.38		20	
4	Bread	0.19	0.22		50	
5	Yoghurt	0.12	0.14		20	

   i. The **Profit** (column D) is calculated by subtracting the Cost Price from the Selling Price. What formula should be inserted in cell D2 to find the profit on milk? [2]
   ii. Column E shows the quantity of **Items Sold**. Write down the formula that must be typed in cell F2 to find the **Total Profit** on milk. [2]
   iii. A formula may contain a **built-in function**, such as AVERAGE. What is the advantage of having such functions available in a spreadsheet program? [2]

(d) **Mention** and **describe** **<u>three</u>** main differences between a spreadsheet and a database. [3]