

JUNIOR LYCEUM ANNUAL EXAMINATIONS 2004
Educational Assessment Unit – Education Division

FORM 3 (Option)

COMPUTER STUDIES

TIME: 1 hr 30 min

Name: _____

Class: _____

Directions to Candidates:

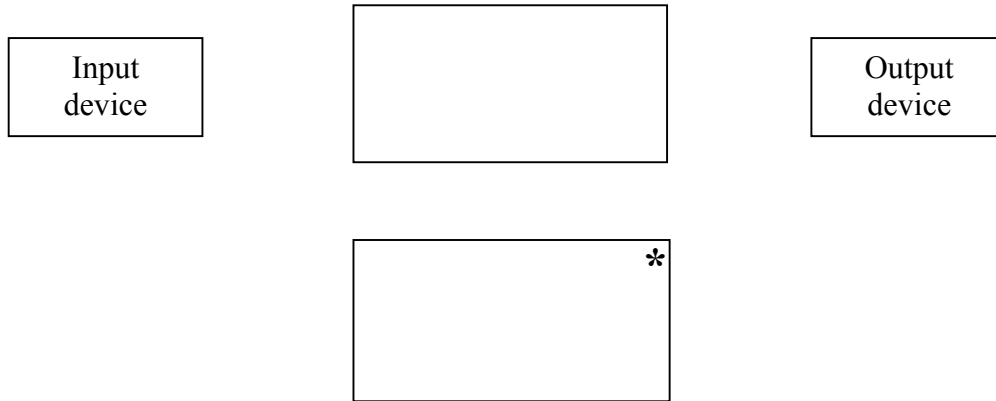
Answer ALL questions in Section A on this paper;
Answer any TWO questions from Section B on separate foolscaps;
The use of flow chart template is permitted;
Calculators are NOT allowed;
Good English and orderly presentation are important.

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) Complete the **labelling** of the following block diagram of a computer system.
Draw **arrows** to show the **flow of data** between the units.



- (b) Provide TWO **examples** of the unit that you have written in the box marked '*'. [4]
1. _____ 2. _____ [1]

- 2 In the context of a **hard disk**, explain the following terms:

- (a) Storing and retrieving data.

_____ [1]

- (b) File allocation.

_____ [1]

- (c) Access time.

_____ [1]

- (d) Serial and direct access.

_____ [1]

(e) Parallel data transfer.

[1]

3 (a) Write down the typical **storage capacity** of the following storage devices.

- Floppy disk. _____ Megabytes [1]
- Hard disk. _____ Gigabytes [1]
- CD ROM. _____ Megabytes [1]
- RAM. _____ Megabytes [1]

(b) Which **one of the four** devices listed above is the **fastest** (that is, has the smallest access time)?

[1]

4 (a) In the boxes provided below, **name** and **draw the symbols** of the three types of **two-state** electronic devices.

Name: _____	Name: _____	Name: _____
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[3]

(b) Which one of the above **electronic devices** produces a 1 at the output only if **ALL** the inputs are 1s?

[1]

In the space provided on the right, draw the **truth table** of this electronic device.

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[1]

5 Your teacher has asked you to create a spreadsheet to help you **analyse data about the weather**. Data is collected daily and at the end of three months you will use your spreadsheet to present a general description of the weather for the three months.

(a) Where would you **find the data** needed? Provide TWO examples.

1. _____
2. _____

[1]

(b) List FOUR **items of data** that you would collect.

1. _____
2. _____
3. _____
4. _____

[2]

(c) Name any TWO **built-in functions** that you would use in formulas to analyse the collected data.

1. _____
2. _____

[1]

(d) Besides tabular form, in what **other form** can you **present** your findings?

[1]

6 Write **one Pascal statement** for each of the following tasks:

(a) Print the word "Hello" on the screen.

[1]

(b) Assign the value of 6 to the variable *cost*.

[1]

(c) Store the **integer remainder** in variable *remainder* after dividing 25 by the variable *number*.

[1]

(d) **Compare** the two integer variables *X* and *Y* and print the **larger** of the two on the screen.

[2]

7 **Fill in** the blanks in the paragraph below using TEN **words** from the following list:

maximised, icon, boots, clicking, RAM, commands, tracks, loaded, hard, pointer, files, closed, mouse

When you switch on the computer, you have to wait until the system _____ up. During this time the 'Windows' program is _____ from the hard disk and stored into _____. Since Windows has a Graphical User Interface, you use the _____ to move a _____ around the screen. Programs and _____ can be selected by clicking on their _____. Clicking on a menu would open a list of _____. A window can be _____, minimised or _____ by a simple click of the mouse button. [5]

8 'Windows' provides the computer user with a number of **utilities**.

(a) Explain what you understand by **utilities**.

_____ [1]

(b) Write a **short note** on each of the following **utilities**:

Defragmentation: _____

_____ [2]

Anti-virus: _____

_____ [2]

9 This question is about the **Internet**.

(a) What is a **web browser**?

_____ [1]

(b) Describe ONE method of **restricting** your search while using a **search engine**.

[2]

(c) Explain how **bookmarks** (or **favourites**) can **help** you while using the Internet.

[2]

10 (a) The following are three **people** working in an **IT department**.

Information systems manager(ISM), Programmer, Maintenance engineer

Write down the **person** responsible for each of the following **roles**. Each person must be used TWICE.

Draws the flowcharts. _____

Repairs hardware faults. _____

Responsible for the security of data. _____

Tests whether a program works. _____

Carries out preventive maintenance. _____

In charge of IT department. _____

[3]

(b) List TWO **tasks** performed by the **Web master**.

[2]

11 (a) Convert $1011\ 0001_2$ to **decimal**.

Answer: [2]

- (b) Convert 85 to **binary**.

Answer: [2]

- (c) A particular computer has a **32-bit word**. How many **bytes** can be processed in one operation?

[1]

Section B – Answer two questions on a separate foolscap.

- 12** *This question is on programming.*

Write a Pascal **program** that allows a user to input **five numbers**. The program will then print:

- the **average** of the five numbers and
- the **largest** number entered.

Make the program **user friendly** and include **in-line comments** to make the program understandable.

[15]

- 13** *This question is on computer peripherals.*

- (a) Write a **short note** on the **MICR reader**, **Barcode reader** and **Touch screen**. State a **suitable application** for each device.

[6]

- (b) The picture on the right has to be **digitised**.

What do you understand by **digitising a picture**?

Write down the names of two **devices** that can be used to **input the picture** without having to draw it again.



[2]

- (c) Explain the meaning of the following statements:

- A laser printer is a **raster** device;
- A graphic plotter is a **vector** device.

What do you understand by the **resolution of a raster device**?

[3]

- (d) Explain the difference between **softcopy** and **hardcopy**. Give an example of an **output device** that produces a softcopy of output.

[2]

- (e) The **colour depth** of a **pixel** is **256**. Explain this statement.

[2]

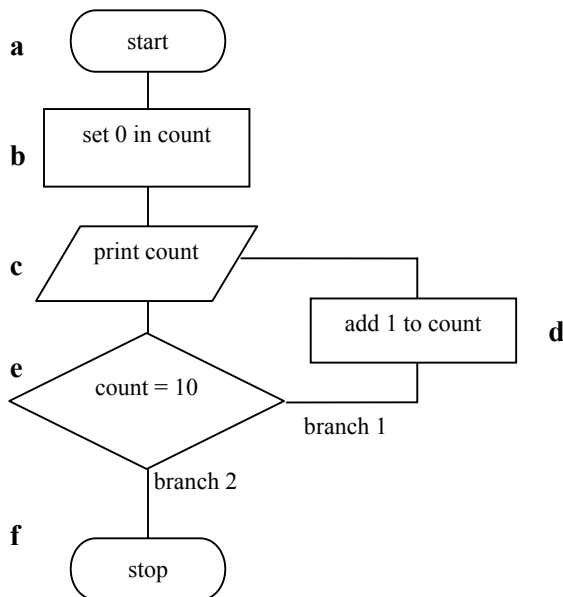
14 This question is about algorithm design.

(a) What is an **algorithm**? [2]

(b) Explain what a **flowchart** is.
How does a flowchart **help** you in **designing** a solution to a problem? [3]

(c) **Draw a flowchart** that allows the user to input a password. This password is compared with an existing word (AB55TR).
If the two words match then print "PASS" on the screen. If the words do not match "NO ACCESS" is shown. [5]

(d) The following flowchart **prints a set of numbers** on the screen. Look carefully at the flowchart and then answer the questions below.
The flowchart symbols have been given a letter of the alphabet for ease of referencing.



i) Which symbol represents a **decision**?

ii) What is symbol 'b' called?

iii) Which **number** is printed **first** and which **last**?

iv) State whether 'branch 2' would be replaced with a **true** or with a **false**. [5]