SECONDARY SCHOOL ANNUAL EXAMINATIONS 2010

Directorate for Quality and Standards in Education
Educational Assessment Unit

FORM 4 **COMPUTER STUDIES** **TIME: 1h 30min**

Name: _____ **Class:** _____

***Directions to Candidates**:*

*Answer **ALL** questions in **Section A** on this paper;*
*Answer **BOTH** 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) **Data verification** may be used during the input of data. What is it **used** for?

Use of verification: _____

_____

[1]

(b) **Check digits** and **range checks** are two types of validation checks.

i. Are validation checks done by the **computer** or by a **clerk**?
ii. Give an **example** of where check digits are usually found.
iii. What is a **range check**?
iv. Give an **example** where a range check can be suitable.

i. Computer or clerk: _____

ii. Example: _____

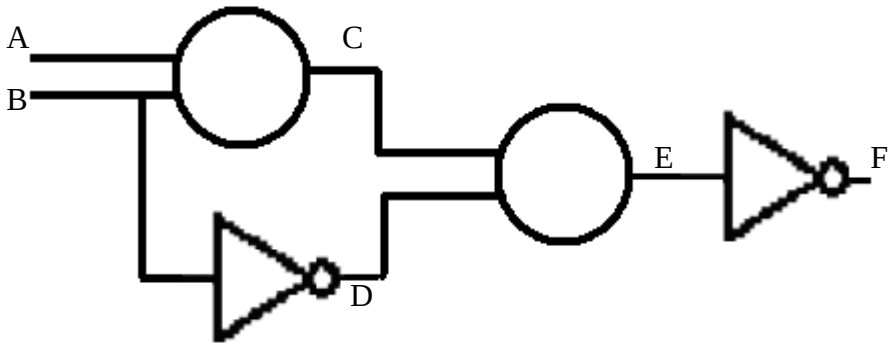
iii. Range check: _____

_____

iv. Example: _____

[4]

2 Below are a logic circuit and its incomplete truth table. The circuit has two circles which represent two logic gates.



A	B	C	D	E	F
0	0			1	0
0	1	0	0		
1	0				
1	1				

(a) Study the circuit and the truth table. Then write the name of the **logic gates** in the circles.

[2]

(b) Complete the **truth table** to match the logic circuit.

[3]

3 (a) Convert the binary number **1011 0011** to:

i. **Decimal**; and

ii. **Hexadecimal**.

Working space:

Decimal: _____

Hex: _____

[2]

(b) What is the **minimum number of bits** required to store a character set made up of only the English alphabet (26 letters) both in capital and small letters?

Minimum number of bits: _____

[1]

(c) Write down whether the following are **true** or **false**.

i. Numerical overflow is when a number does not fit in a page. _____

ii. A register is a temporary storage area of, say, 8 bits. _____

[2]

4 (a) Application packages may be **off-the-shelf**, **customisable** or **tailor-made**. Give one **advantage** of each type of package when compared to the others.

Off-the-shelf: _____

_____

Customisable: _____

_____

Tailor-made: _____

_____

[3]

(b) You have bought an application together with its **software licence**. What does **software licence** mean?

Software licence: _____

_____

[1]

(c) **Continue** the following sentence:

Software NOT requiring a software licence is called _____

[1]

5 (a) The following are four items of information that are found in either the **user documentation** or the **program documentation**.

Flowcharts **How to input data** **Backing up** **Test data used**

In the table below write down where you **expect to find** these four items of information.

User documentation	Program documentation

[4]

(b) Besides the user and program documentation of part (a) above, what is the **other type** of documentation called?

Other type of documentation: _____

[1]

6 (a) **Syntax** and **logical** errors are two types of programming errors.

i. Explain the **difference** between the two types of errors.

ii. For each type of error give an **example**.

Syntax: _____

_____

Example: _____

Logical: _____

_____

Example: _____

[4]

(b) What does **dry running** a program mean?

Dry run: _____

_____

[1]

7 (a) The **CPU** is made up of two subunits.

i. What does **CPU** stand for?

ii. Write down the **names** of the two subunits of the CPU.

iii. Write the **name** and the **function** of one register that may be found in either subunit.

CPU: _____

Subunit 1: _____

Subunit 2: _____

Name of one register: _____

Function of register: _____

_____

[5]

8 (a) **POS** and **CAM** are two acronyms used for computer applications. What does each acronym stand for?

POS: _____

CAM: _____

[2]

(b) **CAD**, **CAL** and **Stock control** are other computer applications. Write down the application that is typically used by each of the following persons.

Teacher: _____

Shop owner: _____

Architect: _____

[3]

9 (a) Programming languages may be divided into **Low-Level Languages (LLL)** and **High-Level Languages (HLL)**.

i. Write down two **differences** between the two levels of languages.

ii. Mention one **example** of a LLL and another of a HLL.

1st Difference: _____

_____

2nd Difference: _____

_____

LLL example: _____

HLL example: _____

[4]

(b) Use ONE of the following **words** to complete the sentence below.

Memory **Disk** **Keyboard**

The fetch execute cycle is the method used by the CPU to bring an instruction

from the _____ and then obey it.

[1]

10 (a) Write one **statement** in Pascal for each of the following:

i. To store the **product** of variables ***A*** and ***B*** in variable ***X***.

ii. To store the **remainder** of variable ***E*** divided by ***F*** in variable ***Y***.

i: _____

ii: _____

[2]

(b) Write **statements** in Pascal to do the following:
Input a person's **age** from the keyboard. If the age is greater than or equal to 18, conditional instruction will **display** '*You have a driving licence*' otherwise display '*You cannot drive*'.

[2]

(c) What is the **name** given to instructions in a program that have to be **repeatedly** executed a number of times?

Repetition: _____

[1]

11

i. What is the difference between **WWW** and the **Internet**?
ii. Mention two **risks** when using the Internet.
iii. What is **e-government**?

Difference: _____

1st Risk: _____

2nd Risk: _____

e-government: _____

[5]

Section B – Answer BOTH Questions

12 (a) The following are the names of the seven stages of **Systems Analysis**:

Project selection and feasibility study
Present system study and analysis
Design of new system
Programming and documentation
Implementation and changeover
Control and review
System maintenance

Write down the **name of the stage** in which the following tasks are done:

i. Drawing the flowcharts to solve the problem.
ii. Installing the new computerised system.

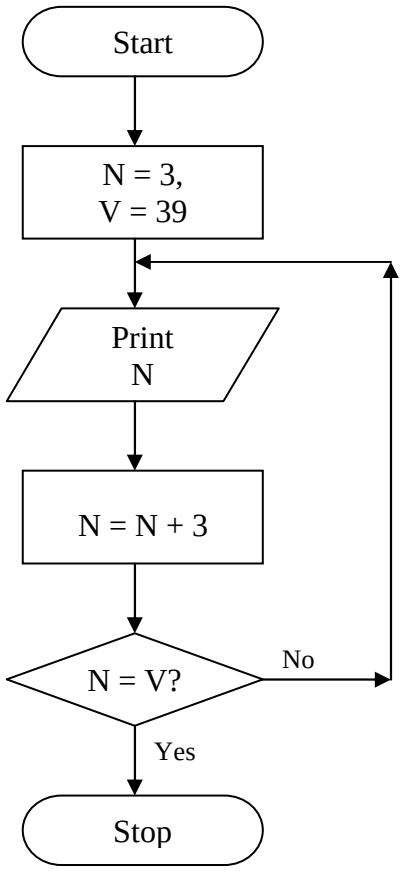
iii. Knowing what the problem with the present system is.
iv. Updating the new system.
v. Checking that the new system is working as it should.
vi. Preparing the user specifications.
vii. Converting the flowcharts into programs. [7]

(b) **Feasibility study** is carried out very **early** during systems analysis.
i. What is the **advantage** of doing the feasibility study early?
ii. Mention one **item of hardware** whose cost must be considered during this study. [2]

(c) Name two different **methods** that may be used to know how the **present system is working**. [2]

(d) **Straight changeover** or **parallel changeover** may be used during systems analysis.
i. What is meant by **changeover**?
ii. Explain the **difference** between the two changeovers mentioned above.
iii. Which of the two changeovers would you **suggest** for a very small shop? [4]

13 The symbols of the following **flowchart** have been numbered for reference. Study the flowchart and then answer the questions below



1
2
3
4
5
6

i. Symbols 1 and 6 are called terminal symbols. What are the **symbols numbered 2**, **3** and **5** called? [3]
ii. Part of the flowchart forms a loop. Write down the **numbers of the symbols** that form the loop. [2]

iii. Symbol 3 prints a number on the screen. What **number** is printed on the first run through the loop?

iv. Write the **new instruction** if variable N has to be increased by 5 each time the loop is obeyed.

v. Symbol 2 assigns two numbers to two variables. What is this **process** called? [2]

vi. Below is the incomplete program for the above flowchart. The missing items are marked by black boxes. Copy the program, replacing the boxes with the **proper items.**

```
Program annual;

Var
      N, V : [■] ;

Begin
      N := 3;
      [■]  ;
      Repeat
        Writeln( [■] );
        N := N + 3;
      [■]  N = V;
[■] .
```

[5]