DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2013

FORM 5  COMPUTING  TIME: 1h 45min

Name: ________________________________  Class: ________________

Directions to Candidates:

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

For office use only:

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Section A - Answer all Questions

1  Search engine, home page, URL (uniform resource locator), hypertext and FTP (file transfer protocol) are all terms concerned with web browsers. Briefly define the five terms.

Search engine:  

Home page:  

URL:  

Hypertext:  

FTP:  

2  (a) Convert the numbers below to the required number system:
   i.  B5₁₆ to decimal:
   ii. 200₁₀ to hexadecimal:
   iii. 1011011₁₁₂ to decimal:

B₅₁₆:  

2₀₀₁₀:  

1₀₁₁₀₁₁₁₂:  

(b) Using 2’s complement, represent the decimal number -101 in binary in an eight bit register.

-101:  


3 (a) Name the three types of secondary storage media, and for each type give an example to justify your answer.

1st medium: ______________________________________________________________
Example: ______________________________________________________________

2nd medium: ______________________________________________________________
Example: ______________________________________________________________

3rd medium: ______________________________________________________________
Example: ______________________________________________________________

(b) Computers use filing systems to organise data and files. Name two types of file systems.

1st system: ______________________________________________________________

2nd system: ______________________________________________________________

4 Study the diagram below which represents a particular circuit:

   A  P  Q  R  X
   B  Q  R  X
   C

i. Draw the truth table for this circuit.
ii. Extract the Boolean expression for this circuit.

Truth Table:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>P</th>
<th>Q</th>
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Boolean Expression: ______________________________________________________________________
5 (a) OMR and OCR are two input devices which facilitate data collection.
   i. What do OMR and OCR stand for?
   ii. Give a suitable application for both devices.

   i. OMR: ____________________________________________________________
   OCR: ____________________________________________________________

   ii. Application for OMR: ____________________________________________
       Application for OCR: ____________________________________________

(b) What is the main difference between a printer and a plotter?

   Difference: ________________________________________________________

6 The statements below are about language translators. Next to each statement write the term/s which best describes it.

   i. This program translates computer instructions to an executable program:

   ii. Collection of computer instructions written using human-readable computer language:

   iii. This type of translator is used for low level languages:

   iv. This type of software is in the form that can be run in the computer:

   v. This program translates and executes one instruction at a time:

6 (b) [3]

7 i. What is an operating system user interface?

   ii. Name two common operating system (OS) interfaces.

   iii. For each interface mentioned in question (ii) give two examples of an OS.

   i. Interface: ________________________________________________________

   ii. 1st interface: ___________________________________________________
       2nd interface: __________________________________________________

   iii. 1st example: _________________________________________________
       2nd example: _________________________________________________
8 (a) LAN, MAN, WAN and WLAN are types of networks.
   i. What do LAN, MAN, WAN and WLAN stand for?
   ii. Differentiate between LAN and WAN.

   i. LAN: 
      MAN: 
      WAN: 
      WLAN: 

   ii. LAN vs WAN: 

(b) Give an advantage of LAN over a standalone computer.
   Advantage: 

9 Real time operating systems is an operating system widely used in different circumstances.
   i. Give an example of where time critical real-time operating system may be used.
   ii. Give the criteria for a system to be real-time.
   iii. Give three characteristics of a real-time system.

   i. Example: 
   ii. Criteria: 

   iii. 1st characteristic: 
       2nd characteristic: 
       3rd characteristic: 

10 (a) One principle of the Data Protection Act is that data is ‘processed fairly and lawfully’.
   i. Give another principle of the Data Protection Act.
   ii. What is the role of the data controllers?

   Principle: 
   Controller: 

(b)  

i. What is **Parity checking**? 

ii. Parity checking can either be **even** or **odd**. Briefly describe what happens when even parity is used.

Parity checking: ____________________________________________________________

Even parity: ______________________________________________________________

Format, Scandisk, Defragmentation, Antivirus and Compression software are five software utilities. Briefly describe the function of each utility.

Format: ________________________________________________________________

Scandisk: ______________________________________________________________

Defragmentation: ______________________________________________________

Antivirus: ______________________________________________________________

Compression Software: _________________________________________________
Section B – Answer BOTH Questions

12 (a) **Spreadsheets** and **Databases** are widely used by the school administration.

i. For each application suggest **two** ways how the school administration may use these programs.

ii. Apart from representing data in a table in spreadsheets, with the aid of **diagrams**, describe **two** other methods how to represent information.

i. 1st Spreadsheet: ________________________________

2nd Spreadsheet: ________________________________

1st Databases: ________________________________

2nd Databases: ________________________________

ii. 1st Diagram and Description: ________________________________

2nd Diagram and Description: ________________________________

(b) **Systems Analysis** (or system development life cycle) is the study and possibility for building a new system. Systems Analysis is usually carried out in different phases. Below are seven tasks that are performed in different stages of systems analysis. For each task, write down the stage where the task is performed.

i. Output designs of the new system are prepared: ________________________________

ii. The new software is installed in the hardware: ________________________________
iii. Performance of the new system is re-checked: __________________________

iv. The system is monitored for number of years: __________________________

v. The new program is well tested: __________________________

vi. Cost requirements are established: __________________________

vii. Investigation of the existing system is done: __________________________

[7]

13 (a) The time which the computer takes to read and process instructions from the memory and executes them is known as the **fetch execute cycle**. The first and last step of the fetch execute cycle are given below. Fill in the missing steps:

1. **Control unit fetches the opcode from the memory location indicated by the Program Counter.**

2. __________________________________________

3. __________________________________________

4. __________________________________________

5. __________________________________________

6. **Go back to step 1.**

[4]
(b) The program below is intended to output the volume of a cylinder. Study the program and answer the questions below. Line numbers are included for clarification.

```java
// Volume of Cylinder
class Cylinder {
    double radius;
    double height;
}
class CylVol{
    public static void main (String args[]) {
        final double PI = 3.132;
        double vol;
        vol = PI*Math.pow(mycylinder.radius,2)*mycylinder.height;
        System.out.println("The volume of the cylinder is: 
```
```
```

i. Which line shows a comment?

ii. From the program identify a constant and a variable.

   **Constant:**

   **Variable:**

iii. In line 11 an object called mycylinder is supposed to be declared. Write the instruction how to declare this object.

iv. Assign values to mycylinder’s instance for the radius = 3 and the height = 5 and hence fill in lines 14 and 15 respectively.

   **Value for radius:**

   **Value for height:**

v. What is the purpose of ‘Math.pow(mycylinder.radius,2)’ in line 17?

vi. What is the purpose of the escape character found in line 19?

```
vii. After making the necessary amendments, the program does not work.
- In which line number is there an error?
- What is this type of error called?
- Rewrite this line in order to fix this error.

Line number: ________________________________
Error: ________________________________
Command: ________________________________

[11]