

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:

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 **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: _____

[5]

- 2 (a) Convert the numbers below to the required number system:

- i. $B5_{16}$ to decimal:
- ii. 200_{10} to hexadecimal:
- iii. 10110111_2 to decimal:

$B5_{16}$: _____

200_{10} : _____

10110111_2 : _____

Working Space

[3]

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

-101: _____

[2]

- 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: _____

[3]

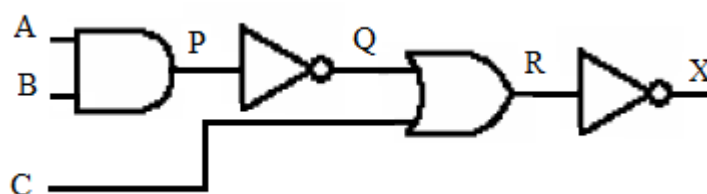
- (b) Computers use filing systems to organise data and files. Name **two** types of file systems.

1st system: _____

2nd system: _____

[2]

- 4 Study the diagram below which represents a particular circuit:



- Draw the **truth table** for this circuit.
- Extract the **Boolean expression** for this circuit.

Truth Table:

Boolean Expression:

[5]

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: _____

[3]

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

Difference: _____

[2]

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: _____

[5]

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: _____

[5]

- 8 (a) LAN, MAN, WAN and WLAN are types of networks.
- What do LAN, MAN, WAN and WLAN stand for?
 - Differentiate between LAN and WAN.

i. LAN: _____

MAN: _____

WAN: _____

WLAN: _____

ii. LAN vs WAN: _____

[4]

- (b) Give an **advantage** of LAN over a standalone computer.

Advantage: _____

[1]

- 9 **Real time operating systems** is an operating system widely used in different circumstances.

- Give an example of where time critical real-time operating system may be used.
- Give the **criteria** for a system to be real-time.
- Give **three** characteristics of a real-time system.

i. **Example:** _____

ii. **Criteria:** _____

iii. **1st characteristic:** _____

2nd characteristic: _____

3rd characteristic: _____

[5]

- 10 (a) One principle of the **Data Protection Act** is that data is 'processed fairly and lawfully'.

- Give another principle of the Data Protection Act.
- What is the role of the data controllers?

Principle: _____

Controller: _____

[2]

- (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: _____

[3]

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

Format: _____

Scandisk: _____

Defragmentation: _____

Antivirus: _____

Compression Software: _____

[5]

Section B – Answer BOTH Questions

- 12 (a) **Spreadsheets** and **Databases** are widely used by the school administration.
- For each application suggest **two** ways how the school administration may use these programs.
 - 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: _____

[8]

- (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.

```

1  // Volume of Cylinder
2
3  class Cylinder {
4      double radius;
5      double height;
6  }
7
8  class CylVol{
9      public static void main (String args[ ]){
10         final double PI = 3.132;
11         .....
12         double vol;
13
14         .....
15         .....
16
17         vol = PI*Math.pow(mycylinder.radius,2)*mycylinder.height;
18
19         System.out.println("The volume of the cylinder is: "+"\\t");
20     }
21 }

```

- 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]