

**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 The terms **Search engine**, **home page**, **URL**, **hypertext** and **FTP** are all concerned with web browsers. Write these terms next to their correct definitions below:

- a. This is designed to search information on the WWW: \_\_\_\_\_
- b. Text with references to other text (documents) that can be immediately accessed: \_\_\_\_\_
- c. Standard protocol used to transfer files from one host to another host: \_\_\_\_\_
- d. The address for a website: \_\_\_\_\_
- e. The first page that a user is taken to when s/he opens a web browser: \_\_\_\_\_

[5]

2 Convert the numbers below to the required number system:

- i.  $B5_{16}$  to decimal:
- ii.  $200_{10}$  to hexadecimal:
- iii.  $10110111_2$  to decimal:
- iv.  $C0_{16}$  to binary:
- v.  $10101110_2$  to hexadecimal:

**$B5_{16}$ :** \_\_\_\_\_

**$200_{10}$ :** \_\_\_\_\_

**$10110111_2$ :** \_\_\_\_\_

**$C0_{16}$ :** \_\_\_\_\_

**$10101110_2$ :** \_\_\_\_\_

*Working Space*

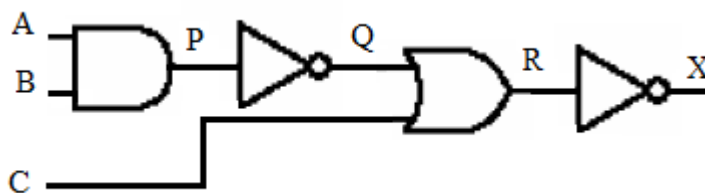
[5]

3 For each secondary storage media below, state if it is **magnetic**, **optical** or **electronic**:

- i. DVD-ROM: \_\_\_\_\_
- ii. Hard disk: \_\_\_\_\_
- iii. Tape: \_\_\_\_\_
- iv. Pendrive: \_\_\_\_\_
- v. CD-ROM: \_\_\_\_\_

[5]

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



- i. Draw the **truth table** for this circuit.

**Truth Table:**

- 5 (a) **OMR** and **OCR** are two input devices which facilitate data collection. [5]

- What do OMR and OCR stand for?
- 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**? [3]

**Difference:**

\_\_\_\_\_

\_\_\_\_\_

- 6 The statements below are about **language translators**. Fill in the following terms: *source code*, *executable code*, *interpreter*, *assembler* and *compiler* next to the statements below: [2]

- This program translates computer instructions to an executable program:
- Collection of computer instructions written using human-readable computer language:
- This type of translator is used for low level languages:
- This type of software is in the form that can be run in the computer:
- This program translates and executes one instruction at a time:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[5]

7

- i. What is an operating system **user interface**?
- ii. **GUI** and **CLI** are two interfaces. What does each acronym stand for?
- iii. For **each** interface in question (ii) give two examples of an operating system.

- i. **Interface:** \_\_\_\_\_  
\_\_\_\_\_
- ii. **GUI:** \_\_\_\_\_  
**CLI:** \_\_\_\_\_
- iii. **1<sup>st</sup> example:** \_\_\_\_\_  
**2<sup>nd</sup> example:** \_\_\_\_\_

[5]

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:** \_\_\_\_\_  
\_\_\_\_\_

[4]

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

**Advantage:** \_\_\_\_\_  
\_\_\_\_\_

[1]

9

Draw a **block diagram** of a computer system. The diagram should include the **CPU, I/O sub-system, main and backing store** and the **flow of data**.  
*Diagram:*

[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)
- What is **Software piracy**?
  - Give one hardware and one software procedure which manufacturers use to prevent piracy.

**Software piracy:** \_\_\_\_\_

**Hardware:** \_\_\_\_\_

**Software:** \_\_\_\_\_

[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. **1<sup>st</sup> Spreadsheet:** \_\_\_\_\_

2<sup>nd</sup> Spreadsheet: \_\_\_\_\_

1<sup>st</sup> Databases: \_\_\_\_\_

2<sup>nd</sup> Databases: \_\_\_\_\_

ii. 1<sup>st</sup> Diagram and Description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2<sup>nd</sup> 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, which are:

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

Below are seven tasks that are performed in different stages of systems analysis. For each task, using the stages above, 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 six steps of the fetch execute cycle, not in order, are:

*CU places opcode in IR*

*CU fetches the opcode from memory location indicated by PC*

*CU increments PC to point to next instruction*

*CU fetches any required operand*

*Go back to step 1*

*CU activates necessary circuits to execute instruction*

Re-arrange the steps of the fetch execute cycle below. The first and last step of the fetch execute cycle have been given below to help you.

1. *CU fetches the opcode from the memory location indicated by the PC.*

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         Cylinder mycylinder = new Cylinder();
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. What is the purpose of line 11?

---

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 `\\t` 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:** \_\_\_\_\_

---