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.
Section A - Answer all Questions

1 (a) Two types of **interfaces** in operating systems are CLI and GUI. What do the acronyms CLI and GUI stand for?

CLI: 

GUI: 

(b) For each of the following statements, write if it is **True (T)** or **False (F)**:

i. A GUI is less user-friendly than a CLI: 

ii. CLI is the operating system most used at home:

iii. System software operates and controls computer hardware:

2 Write the following terms next to their correct definition / function.

*Defragmentation, URL, Home Page, Scandisk, Compression Software.*

i. Another term for a web address. 

ii. This reduces the size of data in order to save space.

iii. This is the first page of a website.

iv. This utility reduces data access time and allows storage to be used more efficiently.

v. This checks your hard disk for errors and corrects problems found.

3 For each of the media below tick (✓) which technology they use:

<table>
<thead>
<tr>
<th>Pendrive</th>
<th>CD</th>
<th>DVD</th>
<th>Tapes</th>
<th>Hard Disks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic</td>
<td>Optical</td>
<td>Electronic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4 (a) While typing a document, Pauline made some typing errors. The table below shows the mistakes. Next to each mistake write the name of the typing error:

<table>
<thead>
<tr>
<th>What Pauline typed</th>
<th>Error Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPTER instead of COMPUTER</td>
<td></td>
</tr>
<tr>
<td>TABEL instead of TABLE</td>
<td></td>
</tr>
<tr>
<td>CHEIR instead of CHAIR</td>
<td></td>
</tr>
</tbody>
</table>
(b) i. What is a range check?
ii. Justify your answer by a suitable example.

Range Check: 

Example:

5 Five personnel working in an IT department are: I.T. Trainer, Webmaster, Computer Engineer, Systems Analyst and Data Entry Clerk. For each duty in the table below, state which person performs such duty.

<table>
<thead>
<tr>
<th>Duty</th>
<th>Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performs feasibility study:</td>
<td></td>
</tr>
<tr>
<td>Checks if the input data is correct:</td>
<td></td>
</tr>
<tr>
<td>Teaches new employees how to use the system:</td>
<td></td>
</tr>
<tr>
<td>Sets up hardware of a new system:</td>
<td></td>
</tr>
<tr>
<td>Maintains the website of the company:</td>
<td></td>
</tr>
</tbody>
</table>

The process of analyzing a system with the view to computerization is known as Systems Analysis. The first five unordered steps of Systems Analysis are: Programming and documentation, Project selection and feasibility study, Design of new computerized system, Present system study and analysis and Implementation and changeover methods. Write the five steps in order.

Step 1: 

Step 2: 

Step 3: 

Step 4: 

Step 5: 

[2]

[5]
7 (a) The statements below describe three different types of networks. For each statement give the name of the network usually used.

Group of computers and network devices connected together, usually within the same building: __________________________
Usually this type of network is not restricted to a geographical area: __________________________
Usually this network spans several buildings in the same city or town: __________________________

(b) E-mail is an application used in WAN. Give another example of a use for WAN and another for LAN.

WAN: __________________________
LAN: __________________________

8 (a) While programming, a programmer might encounter three types of programming errors. For each error below, indicate which type of error was done.

price + vat = cost; __________________________
y = 1/x; //where x = 0 __________________________
a = length + length; (a is area of square) __________________________

(b) Distinguish between source code and executable code.

Source: __________________________
Executable: __________________________

9 (a) Software manufacturers try their best to provide software which cannot be copied. Name a hardware and software safeguard.

Hardware: __________________________
Software: __________________________

(b) What is the main purpose of the data protection act (DPA)?

DPA: __________________________

(c) Distinguish between software piracy and copyright.

Piracy: __________________________
Copyright: __________________________
Use the given term/s to name the most appropriate application for each of the following **Input/Output** devices (some applications may be used more than once):

*Word processing, Bank Applications, CAD, Correction of multiple choice questions, DTP, Menu selection, POS and Invoices.*

**Mouse:**

**Digital Camera:**

**Dot Matrix Printer:**

**MICR:**

**Light Pen:**

**Graphics Tablet:**

**Keyboard:**

**OMR:**

**Braille Printer:**

**Barcode Reader:**

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Study the program below, which is supposed to display a mathematical table from 1 to 12, and then answer the questions:

```java
public class MathTable{
    public static void main(String[] args){
        int num = 1;
        System.out.print("Enter which table to calculate: ");
        int table = Keyboard.readInt();
        System.out.println();
        while (num <= 12){
            System.out.println(_________________);
            num--;
        }
    }
}
```

i. What is the concept found in line 3 called?

ii. The program uses one type of iteration, mention another one used in Java.

iii. As it is the program has an error. In which line number is this error?

iv. Fix the error found in (iii) so that the program works as intended.

v. Fill in Line 8 so that the program displays the answer.

i: ____________________________

ii: ____________________________

iii: ____________________________

iv: ____________________________

v: ____________________________
Section B – Answer BOTH Questions

12 (a) Draw a block diagram showing the main hardware units of a computer system. Your diagram should at least include the: CU, ALU, Main Memory (MU), Input, I/O Subsystem, Output and Secondary Storage.

Space for diagram:

(b)  

i. Name **three** registers found in the CPU.

ii. Briefly describe the function of each register.

i. 3 registers: .................................................................

   ii. 1st register: ...........................................................

   ........................................................................

   2nd register: ...........................................................

   ........................................................................

   3rd register: ...........................................................

   ........................................................................

(c) The process by which a computer retrieves a program instruction from its memory, decodes it and executes it is known as the **fetch execute cycle**. Usually, this cycle is done in six steps. Write the first five steps (the last one is ready).

   Step 1: ........................................................................

   ........................................................................

   Step 2: ........................................................................

   ........................................................................
Step 3: 

Step 4: 

Step 5: 

Step 6: Go back to step 1. 

13 (a) Draw the truth table for the logic circuit below:

Space for truth table:

(b) Convert the given numbers to the required number system:
   i. 93\(_{16}\) to binary
   ii. 10101111\(_{2}\) to decimal
   iii. 205\(_{10}\) to binary
   iv. 11011010\(_{2}\) to hexadecimal
   v. AB\(_{16}\) to decimal
   vi. 195\(_{10}\) to hexadecimal

   i. 93 = 
   ii. 10101111 = 
   iii. 205 = 
   iv. 11011010 = 
(c) **Index creation** and **embedded graphic objects** are two features of a DTP. Briefly explain both features.

i. **Index creation**: 

ii. **Embedded G. O.**: 

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Working Area: