Instructions to Candidates

- Write your name and Index Number in the spaces provided.
- This paper consists of two sections.
- Answer ALL questions in section A
- Answer Question 16 and other THREE questions in section B.
- All answers MUST be written in the spaces provided on this question paper.

<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
<th>Maximum Score</th>
<th>Actual Score</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>1 - 15</td>
<td>40</td>
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<tr>
<td>B</td>
<td>16</td>
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<td>15</td>
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<td>100</td>
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</table>
1. Explain two ways in which computer can be used in the following areas. (2mks)
   a) Entertainment industries
      1) Creating and playing computer games.
      2) Recent, synthesize, edit and distribute music.
      3) Create animations and special effects in movies.
   b) Banking
      1) Processing of cheques.
      2) Preparation of payrolls.
      3) Keeping records of customer accounts.
      4) Manage financial transactions by use of ATM to dispense and deposit money.

2. Write the following abbreviations in full. (2mks)
   a) POST
      Power-On-Self-Test
   b) SVGA
      Super Video Graphics Array

3. Suggest how in future the computer may be made user-friendly for persons who are visually challenged. (1mk)
   - Use of Braille keyboard
   - Speakers and voice input devices such as microphones.

4. Explain three advantages of an inkjet printer. (3mks)
   - High quality printouts are produced with options of using color.
   - Relatively faster than dot matrix printers.
   - Relatively cheaper compared to laser printers.
5. Odhiambo a computer student at Lenana High School had the following problems. (2mks)
   a)  Headache
   b)  Backache

Give the likely cause of the above problems and give the likely solution for each problem.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Likely cause</th>
<th>Problem solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>- Using a computer for a long period of time without taking breaks</td>
<td>Always take frequent breaks</td>
</tr>
<tr>
<td>Backache</td>
<td>- Poor sitting or use of substandard furniture</td>
<td>- Sit in an upright posture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Use standard/adjust the furniture to your comfort</td>
</tr>
</tbody>
</table>
a) What do you understand by the term *dual core computer*? (1mk)

*A computer whose motherboard has two processors.*

8. Define a multimedia system and state two components of a multimedia system. (2mks)

- Ability for a computer to process and output text, sound, video and pictures. ✓ ✓
- Components of a multimedia system:
  ✓ Speakers
  ✓ Sound Card
  ✓ CD/DVD drive
  ✓ SVGA monitor
  ✓ Software that is able to play multimedia content.

2 x 1/2 = 1

9. a) State the type of files which have the following file extensions and give an example for each (2mks)

i. .BAT
   - System file - Eg batch file used to process log files, run series of calculations.

ii. .XLS
    - Data file, A spreadsheet file e.g. Ms. Excel worksheets.

b) List four types of proof reading tools in a word process. (2mks)

✓ Spelling and grammar checker
✓ Thesaurus
✓ Auto complete
✓ Autocorrect

4 x 1/2 = 2

10. a) While Wekesa is editing a workbook data item, a # VALUE! Error occurred. Identify the cause of such error in the affected worksheet. (1mk)

*Occurs when wrong type of argument or operand is used.*

1 x 1 = 1.
b) Distinguish between an embedded chart and a chart sheet.

**Embedded chart** - A chart that is saved as part of the worksheet on which it is created.

**Chart sheet** - A separate sheet within the workbook that contains the chart.

11. State four importance of the internet to the society.

Electronic mail (E-mail) has enabled faster communication.
E-banking has enabled establishment of branchless banks.
It has enabled online shopping.
It has enabled online/distance learning.
It has enabled use of social networking e.g. Facebook, Twitter, etc.

12. Draw a flowchart that can be used to find the area of a semi-circle.

```
Begin

\[ \text{Area} = \frac{1}{2} \pi r^2 \]  \(1 \text{ MK}\)

Input Radius

Area = \(\frac{1}{2} \pi \text{Radius}^2\)  \(1 \text{ MK}\)

Print Area

Stop
```

13. Define the following terms as used in desktop publishing

i. Master page

A page used in designing the general layout that is to be replicated in all other pages in a publication.
ii. Gutter
- Blank space between two facing pages.

Extra space allowance used to accommodate the binding in books and magazines.

14. Use two complements to complete the value of Y in eight bit binary notation. (4mks)

\[ 96_{10} + Y_{10} = 124_{10} \]

\[ Y_{10} = 124_{10} - 96_{10} \]

\[ \begin{array}{c|c|c}
9 & \text{Rem.} & 124 \text{ Rem.} \\
2 & 48 & 0 \\
2 & 24 & 0 \\
2 & 12 & 0 \\
2 & 6 & 0 \\
2 & 3 & 0 \\
2 & 1 & 1 \\
2 & 0 & 1 \\
\end{array} \]

\[ 1\text{'c. ef. 0.11000000 is 10011111.} \]

\[ 2\text{'c will be } 10011111 + 1 = 10100000 \]

\[ \text{Overflow bit (ignore).} \]

\[ \frac{11000000}{11111002} \]

\[ 01111002 - 01100002 \]

\[ \Rightarrow 01100002 \]

\[ = 10100000 \]

\[ = 01111100 \]

\[ + \quad 01100002 \]

\[ \rightarrow 00001100_2 \text{ Ans.} \]

(4mks)

15. a) Natural disaster can cause loss of data and programs. State two ways of ensuring that data and programs are not lost if a disaster strikes. (2mks)

\[ \checkmark \text{Create replicates of backups in separate and remote environment.} \]

b) State two advantages of using robots in industries. (2mks)

\[ \checkmark \text{They are fast in performing tasks} \]

\[ \checkmark \text{They do not get bored of doing the same task} \]

\[ \checkmark \text{They can do tasks that are hazardous for human beings} \]

\[ \checkmark \text{They produce high-quality products} \]

Any \( 2 \times 1 = 2 \)
Section B (60 marks)

Answer Question 16 and any other three from this section.

16.  a) State **three** functions of an assembler.  
    - Converts symbolic operations code (mnemonic) to an object code.
    - Allocates space in memory for the object code.
    - Identifies errors and produces a list of all errors detected.
    - Produces a list of the source code and the object code.
    - Links the object code to the existing code libraries.  
    \[2 \times 1 = 3\]  
    \[3 \times 1 = 3\]

b) Highlight **three** characteristics of a good flowchart.  
    - Must have clear one starting point and one end point.
    - Must flow in a logical order.
    - Must use the correct symbols.
    - Should have short, clear and readable statements written inside the symbols.  
    \[3 \times 1 = 3\]

c) Give **two** examples of a web scripting languages.  
    - HTML
    - JavaScript
    - VBScript
    - XML
    - Perl
    - Cold Fusion
    - Apple Script
    - Python
    - PHP
    \[2 \times 1 = 2\]
d) Nekta company give a discount of 16% for purchase worth sh. 10,000 and above; 10% for purchase worth between sh. 5,000 and 10,000 and none for purchase worth sh. 5,000 and below.

Write a pseudo code for a program that would accept the value of a purchase, compute the discount, then display the new amount to be paid by a customer. (7mks)

```
Start
    Set x as the value of purchase
    Set d as the discount
    Set y as the new amount to be paid.
    Input x
    If x ≥ 10,000
        d = 0.16 * x
        y = x - d
    Else If x > 5,000
        d = 0.10 * x
        y = x - d
    Else
        y = x
    End If
    End If
    Print y
Stop
```

Note: Accept any correct pseudocode.

17. a) What is meant be each of the following terms as used in data security and controls. (2mks)

i. Confidentiality
   - Sensitive data or information belonging to an organisation or government should not be accessed by or disclosed to unauthorised people.

ii. Threats
   - Circumstances that have the potential to cause loss or harm.
b) Jane a form four student was advised to partition a hard disk for her computer. Explain two reasons that may have necessitated this.

- To install two operating systems on one computer.
- To use one of the partitions for backup purposes.

If one table in a database contains the fields: EMPLOYEE – ID, LAST – NAME, FIRST – NAME and HIRE – DATE and another contains the fields DEPARTMENT, EMPLOYEE – ID and SALARY, it is possible to establish a relationship between the two tables.

i. Name the type of such a database. (1mk)

Relational database

ii. What type of relationship can be established between the tables? (1mk)

One-to-One

iii. Provide the most appropriate data types for each of the fields. (3mks)

<table>
<thead>
<tr>
<th>Field</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMPLOYEE – ID</td>
<td>Text</td>
</tr>
<tr>
<td>LAST – NAME</td>
<td>Text</td>
</tr>
<tr>
<td>FIRST – NAME</td>
<td>Text</td>
</tr>
<tr>
<td>HIRE – DATE</td>
<td>Date/Time</td>
</tr>
<tr>
<td>DEPARTMENT</td>
<td>Text</td>
</tr>
<tr>
<td>SALARY</td>
<td>Currency</td>
</tr>
</tbody>
</table>
d) A publishing firm designed the following publication using a DTP software.

![SALE!! SALE!! SALE!!]

**COMPUTER SALES**

Welcome to the exciting sale of:
- Laptops
- Desktops
- CD & DVD

All at 10% off

i. Give two reasons why the firm prefers using DTP instead of Word Processors. (2mks)

- DTP provides a wide range of templates.
- Master pages are used to set common layout.
- Every item on a page is contained in a frame and can be edited and formatted independently.

\[\text{Any } 2 \times 1 = 2\]

ii. Identify four formatting features used in the designing the publication. (2mks)

- **Bolding**
- **Underline**
- **Italics**
- **Drop Cap**
- **Bullets**
- **Font** (style, size and type)

\[\text{Accept any correct formatting feature which can be identified in publication above.}\]
18.a) i) Give any TWO ways of representing a negative number in computer system.  
(2 marks)
- Sign bit
- Ones Complement
- Twos Complement

- \( 2 \times 1 = 2 \)

ii) The following eight-bit pattern represents the two’s complement of an integer: 110001001. What is the decimal equivalent?  
(2 marks)

- Its 1’s complement is 001110110 \( \checkmark \)
- Its 2’s complement is 001110111 \( \checkmark \)

\[ = 119_{10} \text{ ANS} \checkmark \]

iii) Subtract the binary number 0011001 from 10110010.  
(2 marks)

\[
\begin{array}{r}
10110010 \\
- 0011001 \\
\hline
10011001 \\
\end{array}
\]

\[ \checkmark \text{ } 2 \text{MKS} \]

b) Describe the following types of errors in data processing, giving examples.  
(3mks)

- (i) **Truncated**
  
  Shortening or cutting off part of a number or 
  a word.