**Name……………………………………………………….… ADM NO…………………**

**Class …………………Date………………………. SIGN……………………………….**

**451/1**

**COMPUTER STUDIES**

**PAPER 1 (THEORY)**

**TIME: 2 ½ HOURS**

**ASUMBI GIRLS HIGH SCHOOL**

**TERM 2 – DECEMBER 2021**

**FORM 4 – COMPUTER STUDIES PAPER 1**

**Instructions to Candidates**

1. Write your name and admission number in the spaces provided above.
2. This Paper consists of two sections **A** and **B**.
3. Answer **ALL** the questions in section **A**.
4. Answer ***question 16 (compulsory)*** and any other ***THREE*** questions from section **B.**
5. **All** answers should be written in the spaces provided.
6. This paper consists of **12 printed pages**. Candidates should check to ensure that all pages are printed as indicated and no questions are missing

**FOR EXAMINER’S USE ONLY**

|  |  |  |
| --- | --- | --- |
| **Section** | **Questions** | **Candidate’s score** |
| **A** | 1. **15**
 |  |
| **B** | **16** |  |
| **17** |  |
|  **18** |  |
|  **19** |  |
|  **20** |  |
| **TOTAL SCORE** |  |

**This paper consists of 14 printed pages. Candidates should check to ensure that all pages are printed as indicated and no question is missing.**

**SECTION A (40 Marks)**

**Answer all questions in this section**

1. For each of the following computer generations, state the technology used to control the internal operations. (2marks)
2. 1st generation:

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1. 2nd generation:

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1. 3rd generation:

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 iv) 4th generation: ……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..

1. State **three** ways in which computers have been used to fight the spread of corona virus in Kenya. (3marks)

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1. Define two types of booting in computer. (2 marks)

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1. Explain the term **“log on”** as applied in internet (2marks)

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1. a) What is disk formatting? (1mark)

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b) State **two** reasons for disk formatting (2 marks)

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1. State a stage in system development life cycle where each of the following activities are carried out:
2. identifying the technologies that may be used in a proposed system; (1 mark)

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1. identifying shortcomings of a system; (1 mark)

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1. Preparing a system for migration plan. (1 mark)

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1. State **three** reasons why an organisation may opt to develop its own software in-house rather

than buy off-the-shelf software. (3 marks)

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1. A particular computer stores numbers in a single 8-bit word. How would it represent? **0.312510**(3marks)

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1. A computer technician found it necessary to disable a firewall when working on a computer system.

(a) What is a firewall? (1mark)

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 (b) State **two** reasons that may have necessitated disabling of the firewall. (2marks)

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1. Differentiate between absolute cell references and relative cell references as applied to spreadsheets.(2 Marks*)*

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1. Mwanzo Micro finance organization has offices in Kericho and Nairobi connected into a network. The management is convinced that someone is illegally gaining access to the data in their computers. State **three** ways the company can overcome this problem. (3marks)

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1. The following worksheet represents the number of litres of milk produced by different cows’ species at Kajiado Ranch Ltd.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **s/no** | **A** | **B** | **C** | **D** | **E** |
|  **1** | **Month** | **Friesian** | **Ayrshire** | **Guernsey** |  |
|  **2** | Jan | 70 | 80 | 65 |  |
|  **3** | Feb | 120 | 62 | 75 |  |
|  **4** | Mar | 110 | 65 | 45 |  |
|  **5** | Apr | 70 | 45 | 60 |  |
|  **6** |  |  |  |  |  |

The cost of each litre of milk is **Kshs.30/=.** This amount is typed in cell **B10**

1. Write a **function** that will calculate the total number of liters of Friesian in all the months. (1mark)

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1. Write a **formula** that can be typed in cell **E2** and then be copied down to obtain monthly sales of milk. (1mark)

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1. **Identify** the data type in cell **C1** and cell **D3** (1mark)

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1. . State **three** main types of looping control structures as used in programming. (3 marks)

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1. A school intends to install wireless media in their communication system.

 a) State any **two** types of wireless communication media. *(1mark)*

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1. Give **two** advantages of this mode of communication media. *(2marks)*

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1. State the functions of the following keys on the computer keyboard:

 (a) Backspace (1 mark)

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(b) Tab key (1 mark)

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**SECTION B (60 MARKS)**

*Answer* ***question 16*** *and any other* ***THREE*** *questions from this section in the spaces provided*

1. (a) What is meant by each of the following terms as used in programming. (3marks)
2. Pseudocode

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1. Flowchart

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1. Dry run

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1. Outline **two** disadvantages of low level programming languages. (2marks)

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1. Differentiate between compilers and interpreters as used in programming. (2marks)

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1. A trader bought a car from a manufacturer and later sold it to another person. Write a pseudocode for a program that will accept the buying price and the selling price of the car, determine whether the trader made a profit /or loss, calculate the profit/loss and display it. (4marks)
2. Draw a flowchart for the above pseudocode (4marks)
3. (a) State **three** limitations of traditional filing methods (3marks)

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(b) Below are two table structures of files in a database.

|  |  |
| --- | --- |
| **FIELD** | **DATA TYPE** |
| Employee no. | Number |
| Date employed | Date/time |
| Department | Text |
| Salary | Currency |

 **TABLE A** **TABLE B**

|  |  |
| --- | --- |
| **FIELD** | **DATA TYPE** |
| Employee name  | Text  |
| Employee number | Auto number  |
| DOB | Date/time |
| Address | Text  |

1. Which of the **two** tables is likely to be the parent table (1mark)

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1. It is advisable to **‘enforce referential integrity’** when creating a relationships. What do you understand by the term referential integrity? (2marks)

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1. The field **‘Employee no’** in **TABLE B** is likely to be the foreign key. What is a foreign key? (2marks)

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1. Which fields in both tables is most appropriate for creating **relationship**? (1mark)

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1. What would make the relationship between the tables fail to work? (2marks)

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1. In databases the field properties specify finer details related to the fields and the table entries expected. State **four** field properties in database. (4marks)

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1. (a) Describe any **two** characteristics octal number system. (2marks)

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(b) Convert each of the following to the number system indicated:

1. 111.1012 to decimal (3marks)

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1. 14.687510 to binary (4marks)

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1. Convert the number -1710 into 8-bit:
2. signed magnitude representation (2marks)

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1. **two’s** complement (2marks)

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d) Perform the arithmetic operation.

 110.112 +11.0112 (2marks)

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1. **a)** distinguish between Computer Aided Instructions (CAI) and Computer Aided Learning(CAL) (4marks)

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 (b) i) State **four** activities that may be carried out when disposing off an old system in an organization. (4 marks)

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ii) State **four** ways of getting user specifications during system design. (4 marks)

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(c) State any **three** reasons why people may resist the introduction of computers at their place of work (3 marks)

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1. a) State the role of each of the following data communication devices:
2. repeater; (1mark)

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1. router. (1mark)

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1. **Figure 3** shows a network based on the bus topology



1. Identify the component labelled p (1mark)

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1. State the function of component labelled p (2marks)

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1. Students of Neema secondary school formed an environmental club with a goal of taking part in environmental conservation activities. Outline **three** ways in which they can use the internet to achieve this goal. (3marks)

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1. i) A company has three branches A, B and C where A is the headquarter. The local area network (LAN) is directly connected to LAN at B and directly to the LAN at C. Explain **two** benefits of having the LAN at B also directly connected to the LAN at C. (4marks)

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1. List three ways by which parents can protect their children from accessing inappropriate content from the internet. (3 marks)

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