

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

- Write your name and admission number in the spaces provided above.
- This Paper consists of two sections **A** and **B**.
- Answer **ALL** the questions in section **A**.
- Answer **question 16 (compulsory)** and any other **THREE** questions from section **B**.
- All** answers should be written in the spaces provided.
- 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
<b>A</b>	<b>1- 15</b>	
<b>B</b>	<b>16</b>	
	<b>17</b>	
	<b>18</b>	
	<b>19</b>	
	<b>20</b>	
	<b>TOTAL SCORE</b>	

**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)

i) 1<sup>st</sup> generation:

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ii) 2<sup>nd</sup> generation:


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iii) 3<sup>rd</sup> generation:

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iv) 4<sup>th</sup> generation:

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

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

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

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

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

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6. State a stage in system development life cycle where each of the following activities are carried out:

a) identifying the technologies that may be used in a proposed system; (1 mark)

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

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

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7. 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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8. A particular computer stores numbers in a single 8-bit word. How would it represent?  $0.3125_{10}$  (3marks)

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

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11. 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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12. 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**

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

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

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

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

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15. 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*

**16. (a)** What is meant by each of the following terms as used in programming. (3marks)

(i) Pseudocode

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(ii) Flowchart

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(iii) Dry run

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

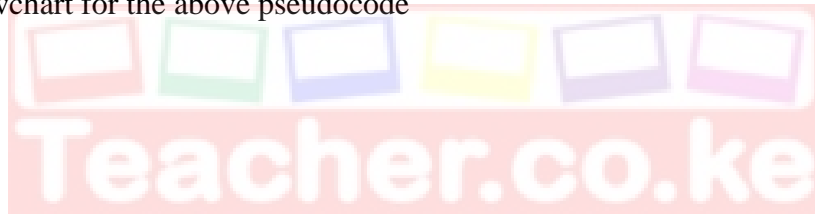
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**c)** Differentiate between compilers and interpreters as used in programming. (2marks)

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- d) 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)

- e) Draw a flowchart for the above pseudocode (4marks)





17. (a) State **three** limitations of traditional filing methods (3marks)

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

**TABLE A**

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

**TABLE B**

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

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

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

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

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

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c) 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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18. (a) Describe any **two** characteristics octal number system. (2marks)

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

i.  $111.101_2$  to decimal (3marks)

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ii.  $14.6875_{10}$  to binary (4marks)

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c) Convert the number  $-17_{10}$  into 8-bit:

i. signed magnitude representation (2marks)

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ii. two's complement (2marks)

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d) Perform the arithmetic operation.

$110.11_2 + 11.011_2$  (2marks)

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19. 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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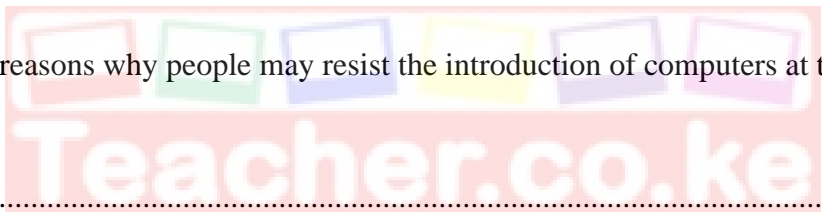
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(c) State any **three** reasons why people may resist the introduction of computers at their place of work (3 marks)



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20. a) State the role of each of the following data communication devices:

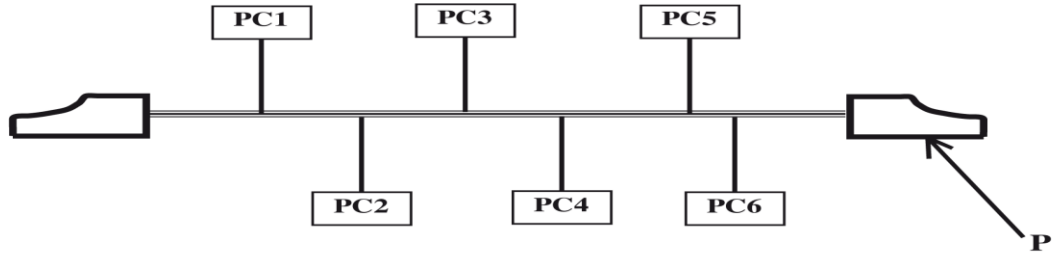
i) repeater; (1mark)

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ii) router. (1mark)

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b) **Figure 3** shows a network based on the bus topology



**Figure 3**

i. Identify the component labelled p (1mark)

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

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

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