KAPSABET HIGH SCHOOL

451/1 - COMPUTER STUDIES – Paper 1
FORM 4 (THEORY)
– 2½hrs

NAME: ……………………………………………………………. ADM NO.: ………………

CLASS ………

CANDIDATE'S   SIGNATURE: …………………………….... DATE: ………………………………………

INTERNAL TRIAL 1 2023

Kenya Certificate of Secondary Education (K.C.S.E)

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1

(THEORY)

TIME: 2 ½ HOURS

Instruction to Candidates.

(a) Write your Name and Index Number in the spaces provided at the top of this paper.
(b) Sign and write the date of examination in the spaces provided above.
(c) This paper consists of **TWO** sections; **A** and **B.**
(d) Answer ALL the questions in Section **A**.
(e) Answer question **16** and any other **THREE** questions from Section **B**.
(f) All answers should be written in the spaces provided on the question paper.
(g) This paper consists of 16 printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

KAPSABET BOYS HIGH SCHOOL

For Examiner's Use Only.

Section	Question	Score
A	1 - 15	
B	16	
	17	
	18	
	19	
	20	
	TOTAL	

Section A (40 Marks)
Answer ALL Questions from this section

1. State three reasons why it is difficult to control, detect and prevent computer crimes (3marks)

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2. Mr. Kala wants to buy a printer to use in his automobile workshop for printing sales orders in duplicates. He has approached you for advice. What printer should he buy?   (1 Mark)

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Give a reason for your answer.   .... (1mark)

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3. Last year 2020 when corona virus was declared a pandemic internationally most companies allowed employees to telework or work at home and communicate with the office using the

Internet. List the hardware, software and services required to access and use the Internet. (3 Marks)

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4. Using a well labelled diagram, describe the fetch and execute cycle.   (3 Marks)

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5. Ventilation is an important practice in the computer lab because it enhances proper circulation of air. Outline **three** ways in which air is regulated in the computer room.   (3 marks)

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6. Differentiate between COM ports and LPT ports.   (2 marks)

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7. State any two advantages of the artificial intelligence.   (2 Marks)

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8. (a) The word COM appears several times in an essay. Jane would like to change the word to COMPUTER. Advise her on how she can accomplish this task using a word processor.   (2 Marks)

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9. Anita was working on her computer studies project. She was worried of the media to use for storing her data. She settled on a media that used serial file organization. How are files organized on a storage medium using this method?   (1 mark)

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    (b) List two advantages offered by this type of file organization.   (2marks)

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10. (a) Rose wants to send an email to Jack. Explain two items that must be present for the mail to be sent.   (2 Marks)

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    (b) (i) Define the term network protocol   (1 Mark)

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    (ii) Name any **two** examples of network protocols   (1 Mark)

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11. (a) What is the importance of layering in DTP?   (1 Mark)

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(b) Distinguish between column guides and margin guides as used in DTP. (2 Marks)

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12. Study the work sheet below and answer the questions that follow:

	A	B	C	D	E	F
1						
2	**MOKASA MIXED HIGH SCHOOL**					
3	**ADM. NO**	**NAME**	**MATHS**	**ENGLISH**	**AVERAGE**	**RANK**
4	1001	Akinyi	78	85		
5	1002	Kamau	89	77		
6	1003	Leila	45	46		
7	1004	Taita	67	69		
8	1005	Mosomtany	98	67		
9	**Highest Score**					
10	**Lowest Score**					
11	**Average Score**					

(a) Write a formula that would be entered in cell E4 to compute the average score for Akinyi.

(1 Mark)

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(b) Write down a formula that used to return the rank of Leila based on average score.

(1 Mark)

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(c) Write down a formula that would return the number of students whose score in English is below 70. (1 Mark)

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13. The manager of a company wants to improve the security of the computer network. She has decided to use authentication techniques so that employees can identify themselves to the system. Name **two** authentication techniques and describe how each technique would help keep the data more secure. (3 Marks)
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14. Mary who works as a systems analyst for JeroKin investments has produced documentation for a newly developed system. State three reasons why both user and technical documentation are needed.   (3 Marks)

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15. Environmentalists plan to test a fast flowing river for pollution. State two advantages of using a computer to do this rather than doing it manually.

(2 Marks)

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SECTION B (60 MKS)
Answer question 16 (<u>Compulsory</u>)and any other <u>THREE</u> questions from this Section.

16. To maintain a strategic fit Safaricom is introducing a tariff called the mega tariff that will lower costs to Safricom to Safaricom calls and calls to other networks. Calls to Safaricom networks will be charged according to the time of the day as listed below:
-Between 8am to 12 noon – 6 Ksh
-Between 12 noon to 2pm-0.8 Kshs
-Between 6 to 1 am -4Kshs
-between 1 am t 8am- 1Kshs

Internal calls to other networks are charged at a fixed rate of 7 Kshs between 8am to 8pm and to while international calls are charged at a rate of 25 Kshs between 8am to 8pm and Kshs 35 for the rest of the day. All calls are charged per minute usage.

Mr. Wasswa Bbaale a business man who makes both internal and internal calls would like to make maximum use of this of this tariff.

a)   Write a pseudo code that would show him know the charges of calls with an appropriate label when he the inputs type of call and the time where appropriate. Use a 24 hour clock.   (8mks)

b)   Design a flowchart for the pseudo code in 16(a) above   (7mks)

17. a) Explain how an operating system controls I/O devices.   (2marks)

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b) Maintaining security is one of the functions the operating system. Explain how the operating system maintains security   (2marks)

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c)   Distinguish between Indexed sequential and direct file organizations   (2marks)

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d) i)   Using appropriate examples, differentiate between distributed and centralized processing modes   (3marks)

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ii) State one advantage and one disadvantage of distributed processing modes in 17(d) (i) (2marks)

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e) i)   With reference to an operating system, differentiate between formatting and partitioning.
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   ii)   List any **TWO** types of user interface.   (2mark)

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18. a) Using eight bits and twos complement, subtract 78_{10} from 17_{10}. Give your answer in decimal notation (3marks)

b) Convert 11011011111.1111_2 to:
   i) Octal (2marks)

   ii) Hexadecimal (2marks)

   iii) Decimal (2marks)

c) State any **Two** methods used to gain illegal access to a computer system (2marks)

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d) i) Distinguish between peer-to-peer and client –server LANs. (2marks)

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ii) Atieno was very happy when she bought a Safaricom 2G modem for she was able to easily connect her computer to the Internet. After six months she noticed it was taking her too long to connect to the Internet. State two possible causes of the problem. (2marks)

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19. a) i) Explain any **two** causes of system change. (2marks)

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     ii) Explain any **THREE** causes of system maintenance. (2marks)

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b) i) Use of questionnaire is one of the most popular fact finding method. State any **TWO** advantages and **TWO** disadvantages of using this method to gather data. (2marks)

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 ii) Explain the importance of requirement specification phase of Systems development.(2marks)

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c) Explain **TWO** reasons why a new system is tested before implementation. (2marks)

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d)i) State two duties performed by a system administrator. (1mark)

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ii) The principal of a school is attempting to convince his staff to us CAL and CAI software. State one benefit and one limitation of using such software. (2marks)

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e)   State one advantage and one disadvantage of using expert systems in medicine   (2marks)

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20. a) Explain three types of communication links that may be used to get an
Internet connection   (3marks)

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b) Differentiate between the Internet and World Wide Web.   (2marks)

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ii) Technology has been blamed for polluting the environment.
Explain how computer technology has contributed to this.   (2marks)

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c) A Company that makes and sells vehicles receives orders from various clients. The company
wants to enter their orders into a database. Study the table structure below and answer the questions
that follow.

Field Name	Data Type	Field Size
Order Number	Number	Long Intenger
Order Date	Date/Time	
Supply Date	Date/Time	
Product code	Tex	5
Customer ID	Number	Long Integer
Delivery address	Text	30
Product Type	Tex	15
Product Name	Tex	10
Quantity Ordered	Number	Long integer
Product Prize	Number	Long Integer

i) Split the above structure into **THREE** tables and for each table identify an appropriate
primary key.   (5marks)

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ii)   Design well labeled tables structures and identify foreign keys   (3marks)

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