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

SCHOOL …………………………………….…. DATE…………….. CLASS ………........

451/1
COMPUTER STUDIES
PAPER 1
JUNE-2022
TIME: 2HOURS

CEKENAS END OF TERM ONE EXAM-2022
FORM FOUR EXAM
Kenya Certificate of Secondary Education.(K.C.S.E)

Instructions to candidates:
(a) Write your name, admission number and name of your school in the spaces provided.
(b) This paper consist of **TWO** sections, **A** and **B.**
(c) Answer **ALL** the questions in section **A.**
(d) Answer question **16** and any other **THREE** questions from section **B.**
(e) All answers should be written in the spaces provided on the question paper.
(f) This paper consists of 12 printed pages.
(g) Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.
(h) Candidates should answer the questions in English.

Section	Question	Maximum Score	Candidate's Score
A	1 – 15	40	
B	16	15	
	17	15	
	18	15	
	19	15	
	20	15	
Total Score			

SECTION A (40 marks)

1. Speech recognition devices are used to capture natural sound and convert the input into digital form. State two problems related to speech recognition devices.   (2 marks)

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2. One classification of software is system software

    (a)   i.   What is meant by system software   (1 mark)

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           ii.   Give one example of system software.   (1 mark)

    _____

    (b)   i.   Name one other software classification   (1 mark)

    _____

           ii.   Give one example of this type of software   (1 mark)

    _____

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. Suggest any three reasons why reservation systems are not yet fully implemented by bus operating companies in Kenya   (3 marks)

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5. Name the three constituent parts of a computer file. (3 marks)

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6. State **two** reasons for system reboot. (2 marks)

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7. Differentiate between Batch processing and real time processing modes. (2 marks)

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8. Outline three ways computers can be used to enhance marketing. (3 marks)

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9. Most computerized security systems make use of biometric analysis. Name three physical features of human beings that can be considered in this analysis. (3 marks)

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10. Differentiate between *high definition multimedia interface* and *Firewire* interface.
(2 marks)

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11. Give two reasons why powder and liquid extinguishers are not recommended unlike gaseous extinguishers. (2 marks)

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12. Differentiate between Bcc and cc in an email. (2 marks)

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13. Since the invention of the first generation of digital computers, much advancement has been realized in the sector of information and technology. Explain two characteristics which have been improved from the first generation to the modern computers. (2 marks)

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14. Give three reasons why a mobile phone is regarded to as a computer. (3 marks)

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15. The following is an excel worksheet showing the performance of students in Tana class.

A	B	C	D	E	F	G	H
	Adm	Student name	Cat1/50	Cat2/50	Total /40	Exam / 60	Total
1	4321	DollineMbesa	30	28	**(a)**	45	**(b)**
2	4333	SelinaMbugua	20	29		55	
3	4330	Winnie Wanjema	25	26		50	
4	4322	MagaretWambari	27	24		43	
5	4324	FaniNjuguna	28	24		42	
6		Maximum	**(c)**				
7		Minimum					
8		Average	**(d)**				
9							

Using the above worksheet write the formula to calculate the values in cells labeled.   (4 marks)

Answer question 16 (compulsory) and any other three questions from this section

16.

a) State and describe two types of error that can occur in programming   (2 marks)

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b) Differentiate between compiler and interpreter as used in programming.   (2 marks)

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c) Name the two major developments during the second generation programming languages
                                                                        (2 marks)

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d) Study the pseudocode below and answer the questions that follow.

```
Start
            N=0
            X=0
        While n < 3
            Repeat
            X = X + 1
        Until x < 2
            N = N +1
        End while
    Print N, X
Stop
```

(i) What will be the output from the program   (2 marks)

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_____

_____

(ii) Draw a flowchart that was used to come up with the following pseud code (7 marks)

17.

(a) List three advantages of wireless technology   (3 marks)

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(b) The computer is to be networked, name one extra device that should be fitted on every computer to enable this to happen   (1mark)

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(c) Data transmission via the internet is done using a mode known as packet switching. Describe this data transmission mode.   (2 marks)
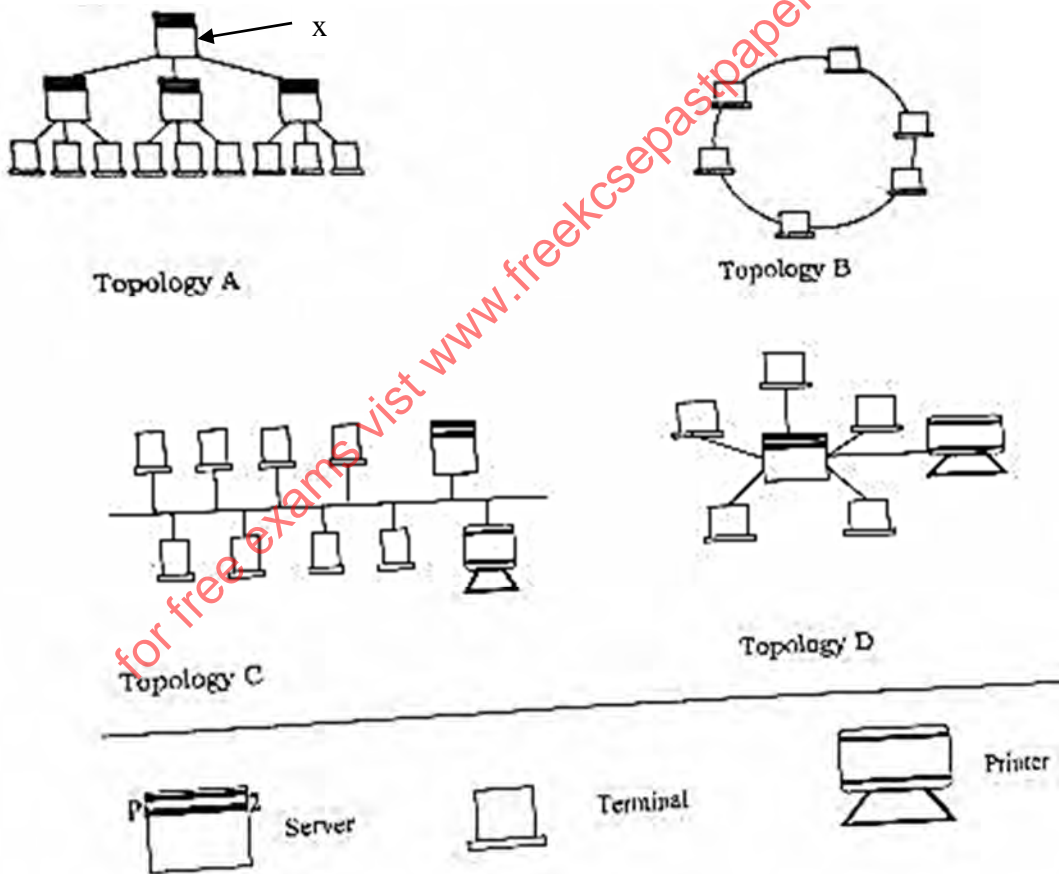
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(d) The diagram below shows four common network topologies A, B, C and D.

i) Name the network topologies A, B, C and D   (4 marks)

A _____

B _____

C_____

D _____

ii) Explain what happens if server X in topology A fails   (1 mark)

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iii) List two advantages with network topology B   (2 marks)

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iv) List two disadvantages associated with network topology D   (2 marks)

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18.

a) In order to generate information from data items, a set of processing activities have to be performed on the data items in a specific sequence depending on the desired result. Draw a well labeled diagram to illustrate data processing cycle.   (2 marks)

b) A data entry clerk experiences some common errors when typing. Most of the time, she finds that:

   (i) After every calculation, the result is less than the expected number of digits required e.g. 345.7896543 the result is given as 345.789.

   (ii) Different characters are typed wrongly, for example instead of typing 12873457 she types 128734S7.

Identify the two types of errors commonly experienced by the clerk during data processing in (i) and (ii) above respectively. (2 marks)

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c) Briefly describe any three electronic data processing modes: (6 marks)

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d) State three ways a user can ensure data accuracy is maintained during data processing

(3 marks)

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e) State two advantages of a computerized filing system as used in data processing.

(2 marks)

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19.

a) Define a database model (1 mark)

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b) List two advantages of using database systems (2 marks)

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c) In a database system, data integrity ensures the correctness and completeness of the data in the database. Differentiate the following types of integrity constraints:

i.   Validity integrity (1 mark)

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_____

ii. Entity integrity (1 mark)

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iii. Referential integrity (1 mark)

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d) Briefly describe the three database models (3 marks)

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e) Using diagrams describe the following three types of relationships. (3 marks)

i.   One – to – one

ii. One – to – many

iii. Many – to – many

f) Explain any three features of database. (3 marks)

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20.

a) State three standard coding scheme used computing and electronic systems. (3 marks)

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b) Convert each of the following numbers

i. 101.001_2 to decimal. (3 marks)

ii. 5E6H to octal. (3 marks)

iii. Add 110.01_2 to 11001.0101_2 (2 marks)

c) Using **two's compliment** perform the following arithmetic leaving your answer in binary form. (4 marks)

$13_{10} - 10_{10}$

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