**Name……………………………………………AdmNo……….…….……Class………………**

**Signature………………………………..**

**451/1**

**COMPUTER STUDIES**

**PAPER 1**

**(THEORY)**

**JULY 2019**

**TIME: 2 ½ HRS**

**MOKASA II JOINT EVALUATION EXAMINATION**

**Kenya certificate of secondary education**

**(K.C.S.E)**

**Instructions to Candidates**

1. *Write your name and index 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 13 printed pages.***
7. *Do* ***not*** *remove any pages from this booklet.*
8. ***Candidates should check to ensure that all pages are printed as indicated and no questions are missing.***
9. ***Candidates should answer the questions in English.***

**for examiners use only**

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| --- | --- | --- |
| **section** | **Question** |  |
| **A** | **1 – 15** |  |
| **B** | **16** |  |
| **17** |  |
| **18** |  |
| **19** |  |
| **20** |  |
| **Total marks** |  |

**SECTION A (40 MARKS)**

**Attempt ALL questions from this section**

1. What is meant by Data Communication Equipment (DCE)? (1 mark)

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1. List **three** examples of Data Communication Equipment. (3 marks)

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1. (i) Name **three** types of graphics used in a word processor (3 marks)

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(ii) Distinguish between subscript and section breaks (2 marks)

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1. List any **three** protocols used in sending and receiving of emails (3 Marks)

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1. State the use of each of the following flowchart symbols (3 marks)
	* 1.
		2.
		3.

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1. State **any two** techniques used by a network administrator to detect and prevent computer crimes. (2 marks)

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1. State **two** transmission media used in wireless transmission (2 marks)

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1. With the aid of a diagram describe the Hierarchical Database Model ( 2 marks)

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1. List any **three** factors that should be considered when developing a database application and give reasons why each should be considered. (3 marks)

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1. Name any **three** types of validation checks during data entry (3 marks)

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1. (i) Differentiate between primary key and index key as used in databases. (2 marks)

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 (ii) Differentiate between hardware and software portability. (2 marks)

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1. State **three** ways in which computer virus infection can be prevented other than through restricting the usage of removable storage media. (3 marks)

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1. State **two** advantages of **real time** data processing mode. (2 marks)

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1. State **two** roles of an information system (2 marks)

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1. A company in town wishes to link its offices together; the linking may be through wireless or fibre optic network media. State **two** benefits that the company would gain from the use of metropolitan area network (MAN) (2 marks)

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**SECTION B (60 MARKS)**

**Answer question 16 and any other THREE questions from this section B**

1. (a) State **four** guidelines followed when designing a flowchart. (2 marks)

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(b) A concert was organized in a hall with a capacity of 1500 people. The first 700 people to buy the tickets at ksh. 1500 were reserved a seat at the VIP section while the others who bought their tickets at ksh. 1000 sat at normal hall outside the VIP section. Assuming that only 1420 tickets were sold;

1. Write a program pseudo code that would be used to determine the sitting arrangements of ticket holders i.e VIP or Normal, the number of VIP, Normal and Unoccupied seats and finally display the total amount of money collected from the concert. (6 marks)
2. Draw a flowchart for the pseudocode above (7 marks)
3. (a) Differentiate between a **select** query and **action** **query** as used in databases. (2 marks)

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(b) Explain **four** elements of database (4 marks)

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(c) Explain the use of each of the following field properties as used in databases (3 marks)

(i) Validation rule

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(ii) Input mask

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(iii) Indexed

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(d) Kiprono has been experiencing a lot of problems in his computer while using it. As a result, he was advised to do the following in order to avoid the problems.

(i) Compress the disk files

(ii) Defragment the disk.

Explain the difference between the two terms above (2 marks)

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(e) Differentiate between Multi-user operating system and Multithreading operating system. (2 marks)

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(f) State **two** roles of a programmer in system development life cycle (2 marks)

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1. (a) The diagram below shows a network arrangement that includes a network security feature to protect data and information. Use it to answers the questions that follow.



1. The networking device labeled **A** is used to connect computers to a WAN (Internet). Name the device used for this purpose. (1 mark)

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1. The part labeled **B** is a security feature used to protect data traffic in the network. Identify and explain the function of this part. (2 marks)

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(b) Define a network node. (1 mark)

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 (d) The internet has been embraced as great a great resource for information and a variety of applications. State **two** ways in which a book publisher can make use of the internet. (2 marks)

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1. (a) Convert each of the following numbers to decimal equivalent; given that the left most bit is a sign bit.

(i) 0101011 (2 marks)

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 (ii) 111110101 (2 marks)

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 (b) Differentiate between **enhanced BCD** and **ASCII-8** coding scheme of representing data in computers.

 (2 marks)

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 (c) Compute the following binary arithmetic expressions.

 (i) 1010.101 + 11.011 (2 marks)

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 (ii) 1010.101 - 11.011 (2 marks)

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 (d) Convert 0.4210 to 6-bit binary notation. (2 marks)

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 (e) Using 8-bit twos complementation, perform the following binary operation. (3 marks)

1110102 - 2710

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1. The figure below is a toolbar for a **DTP** package.



1. Name and state the functions of the tools labeled A, **B, C** and D. (4marks)

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1. Using relevant examples give **four** advantages of using desktop publishing software. (4 marks)

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1. State **four** advantages of automated production. (4 marks)

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1. Most industries use computers for process control. Give any **three** benefits of this. (3marks)

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