**451/1 - COMPUTER STUDIES – Paper 1**

**(THEORY)**

**July 2018**

**TIME: 2 ½ HRS**

**MOKASA II EVALUATION EXAMINATION**

**Kenya certificate of secondary education**

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

**Name……………………………………………….………Adm. No……….…….……Class………………**

**Date:…………………………………………….Signature:…………………………………………………..**

***Instructions to candidates***

1. *Write your name and index number in the spaces provided above.*
2. *Sign and write the date of examination in the spaces provided above.*
3. *This paper consists of TWO sections; A and B*
4. *answer all questions in sections A.*
5. *Answer question 16 and any other THREE questions from section B.*
6. *This paper consists of 14 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 that no question is missing.*
9. *Candidates should answer the questions in English.*

**For Examiner’s Use Only**

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| --- | --- | --- |
| **Section** | **Question** | **Candidate’s score** |
| **A** | **1 – 15** |  |
| **B** | **16** |  |
| **17** |  |
| **18** |  |
| **19** |  |
| **20** |  |
| **Total marks** |  |

**SECTION A (40 MARKS)**

**ANSWER ALL QUESTIONS IN THIS SECTION**

1. What is a dedicated computer? (1 mark)

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1. (a) Parallel computer technology is highly applicable in modern organizations. Explain how a parallel computer works. (2 marks)

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(b)The figure displayed below was used as a major component to implement the processor technology in the third generation computers. Identify its name. (1 mark)

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1. Explain how analog computers are used in industries that manufacture steel products. (2 marks)

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1. A computer controlled simulator can be used to help train aircraft pilots.
2. Give **two** reasons why such a system is used. (1 mark)

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1. An expert system is defined as a computer system that mimics the thought process and reasoning of experts in specific areas such as medical diagnosis, complex financial decisions, weather forecasting, mining & exploration, complex geographical analysis etc.

State **three** components of an expert system. (3 marks)

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1. A well-lit lab is important to avoid eyestrain that causes headache, fatigue and stress.
2. State any **two** safety precautions that can be observed to prevent eye-related issues. (2 marks)

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1. List any **two** tools required when replacing a computer processor with a new one. (2 marks)

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1. State **two** reasons why a computer needs more RAM (2 marks)

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1. Differentiate between the following terms as used in spreadsheet application
2. Statistical analysis and forecasting (2 marks)

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1. Absolute referencing and relative referencing (2 marks)

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1. (i) State **four** categories of input devices. (2 marks)

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 (ii) The diagram below represents a printer dialogue box used when you want to print.



State the functions of the following labels in the diagram (2 marks)

1. Collate

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1. Pages per sheet

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1. State **three** types of Action queries as used in databases. (3 marks)

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1. (i) Organizations can use proprietary or open source software. Describe what is meant by the term ‘**proprietary software’.** (2 marks)

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(ii) Define disk defragmentation software. (1 mark)

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1. A family’s home network consists of several computers linked together wirelessly through a router which also provides access to the Internet.
2. Briefly explain, any **TWO** security threats to this network (At least **one** threat should be from inside the home and **one** threat from outside.) (2 marks)

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1. Explain **one** security measure that the family could take to protect their network from the external threat, given in your answers above in (a). (1 mark)

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1. **(a)** Differentiate between fill and stroke as used in desktop publishing (2 marks)

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**(b)** Margaret claims that DTP is superior to a word processor. Give a reasons why this true. (1 mark)

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1. HDMI, Bluetooth, SCSI, WIFI are some of interface connection technologies that are emerging in most electronic and computing devices. Mention any other **two** interface connections (cable or wireless) that are used with modern devices in transmitting data in computers. (2 marks)

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1. Backup is a vital aspect in secondary storage; they include Cloud storage, hard disk, flash drives, Optical discs, SD cards, Memory cards, etc.
2. Define what is meant by cloud storage. (1 mark)

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1. State **two** benefits of cloud storage in computing. (1 mark)

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1. **(a)** Differentiate between first-line indent and hanging indent as used in word processing. (2 marks)

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**(b)** The figure below show an extract of a page setup dialog box. Use it to answer questions that follow.



1. What is the function the part marked with a circle? (1 mark)

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**SECTION B (60 MARKS)**

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

1. **(a)** Define the term encapsulation as used in programming (1 mark)

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 **(b)** Study the languages below then answer the questions that follow;

**1101 1101**

**1110 001**

**111 000**

**LDA B,10**

**ADD B,20**

**STOP A,B**

NOP

**(i)** **(ii)**

Identify the two programming languages (i) and (ii) above. (2 marks)

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Explain what each line in code (ii) does (2 marks)

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**(c).** Determine the output of the algorithm below. (4 marks)

FOR X = 1 to 6 Do

R=X

WHILE R >= 1 DO

PRINT R

R=R-1

ENDWHILE

ENDFOR

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**(d)** Study the flowchart below then answer the questions that follow

 P = 2

 L = 4

 N = P + 2

IS N < 20?

PRINT N

P = L

L = N

N = P + L

1. Identify the control structure used in the flowchart above (1 mark)

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1. Write a pseudocode for the flowchart above (5 marks)

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1. **(a)** Explain the following data representation coding schemes. (3 marks)
2. Enhanced BCD

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1. EBCDIC

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1. ASCII-8

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…..………………………………………………………………………………………………………………………. **(b)** (i) Convert the binary number 0111110111000000 to its base 16 equivalent. (2 marks)

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 (ii) Using eight bits and twos complement, subtract 7810 from 1710. Give your answer in decimal notation.

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 (iii) Subtract 1210 from 1910 using direct binary subtraction. (3 marks)

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 **(c)** What is the decimal equivalent of the binary number 110.1012 (2 marks)

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1. **(a)** Requirement specification is a stage where the system analyst comes up with the detailed requirements. List **five** requirement specifications in a system development. (5 marks)

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**(b)** State **three** areas that must be addressed during the implementation of a system. (3 marks)

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**(c)** Differentiate between technical feasibility and operational feasibility (2 marks)

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**(d)** (i) Define the structured approach theory of system development. (1 mark)

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 (ii) Differentiate between modular flowchart and system flowchart. (2 marks)

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(iii) Name the flowchart symbols below. (2 marks)

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1. **(a)** State **four** examples of bounded communication media. (2 marks)

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 **(b)** Unsolicited bulk e-mail messages are known as ‘spam’ or ‘junk’ mail. Give **one** reason why these mails are a problem for users. (1 mark)

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 **(c)** The office has a fast Internet connection for transferring information. However, sometimes the Internet runs slowly. Give **two** reasons why this could be the case. (2 marks)

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**(d)** The diagram below shows a networking device called a **bridge** used in networking.

1. State **three** functions performed by a bridge. (3 marks)

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1. The device labeled **A** represents a device that is used to connect multiple computers in the same network or a single LAN. It transmits signals by broadcasting them to all the computers on the network.

Name the device labeled **A** (1 mark)

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1. State any **three** factors to consider when choosing data transmission media. (3 marks)

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1. Define the following terms as used in networking.
* Physical topology (1 mark)

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* Logical topology. (1 mark)

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* Network protocol (1 mark)

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1. **(a)** Differentiate between multiprogramming and multiprocessing as used in data processing. (2 marks)

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 **(b)** State **two** ways of minimizing treats to data integrity (2 marks)

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 **(c)** Differentiate between computational errors and transcription errors (2 marks)

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 **(d)** Explain the following terms: (2 marks)

1. Disk compression

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1. Logical drive

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**(e)** Differentiate between Kernel and shell as used in operating systems. (2 marks)

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**(f)** The diagram below represents the hierarchical arrangement of files in a computer. Use it answer the questions that follow.

**C:/>**

Write a full file pathname used to locate the file named **Funds**. (2 marks)

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**(g)** (i) Identify the type of operating system shown by the figure below. (1 mark)



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(ii) State **two** disadvantages of using the above operating system (2 marks)

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