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

**(Theory)**

**September 2022 – 2½ hours**

**KIJISET JOINT EXAMINATION**

**Name …………………………………………….……… Index Number…………………………..**

**Candidate’s Signature ………………….…...………. Date ……………………………………**

**Instruction to candidates**

1. *Write your name and index number in the space 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*** *the questions in section* ***A.***
5. *Answer question* ***16*** *and any other* ***three*** *questions from section* ***B.***
6. *All answers should be written in the space provided in the question paper.*
7. ***This paper consists of 15 printed pages.***
8. *Do not remove and pages from this booklet.*
9. *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*
10. *Candidates should answer the questions in English.*

**For Examiner’s Use Only**

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| **Section**  | **Question Number**  | **Candidate’s Score** |
| **A**  | **1-15** |  |
| **B** | **16** |  |
| **17** |  |
| **18** |  |
| **19** |  |
| **20** |  |
| **Total**  |  |

**SECTION A (40 MARKS)**

***Answer all questions***

1. Explain how each of the following would affect the suitability of a room for use as a computer room.

(a) Burglar proofed door (1mark)

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(b) Availability of taps and sinks in the room (1mark)

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1. Differentiate between special purpose keys and editing keys on a keyboard.(with an example) (3marks)

3.Two features of Von Neumann architecture are the use of registers and the use of buses.

Give the names of any**two** registers and **two** buses. (2marks)

4.Differentiate between the following terms as used in networking and data communication.

(i) Simplex and duplex communication (2marks)

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(ii) Switch and hub (2marks)

5.Janet needs to send 15 photos to a friend and she chooses to send all 15 together as a single email attachment. Each photo is 1.8 MB in size, but the maximum possible attachment size is only 25 MB.State **two** ways she can solve this problem. (2marks)

6. Differentiate the terms**portability** and **Authenticity** in relation to computer software specifications. (2marks)

7.Describe each of the following data processing methods; (3marks)

(i) Batch processing …………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..…

(ii) Distributed processing

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(iii) Multiprogramming

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1. (a) Distinguish between **firmware** and **device drivers** as used in computers. (2marks)

(b) Peter downloaded a video clip from the internet and stored it on his laptop. When he tried to play the video clip using a media application program, he could neither see the motion pictures nor hear any sound form the video clip. State **two** possible reasons for this. (2marks)

9. The ministry of education is changing the education system in Kenya from 8-4-4 to a new systemby using a few schools to test the new system.

1. Identify the type of change over strategy being used. (1mark)

1. State **two** advantages of this changeover strategy (2marks)

10.State the difference between **system files** and **application files**giving examples(3marks)

11.State **two** examples of each of the following computer application programs. (2marks)

a) Word processors

b)Spreadsheets

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12.State **two** differences between Disk Operating System (DOS) and WINDOWS operating system. (2marks)

13. To compute the area of a circle, a user must input the radius of a circle in a given algorithm. Draw a program flowchart that prompts a user to input the radius and calculates the area of a circle. (3 marks)

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14. Publishing firms prefer using DTP instead of Word processors. Giveany**two** reasons for this. (2marks)

15. Banks have replaced each credit card with a smart card, which contains a microchip, in order to give greater protection against fraud.State **three** items of data that are stored on the microchip in a smart card. (3marks)

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**SECTION B (60 MARKS)**

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

1. (a) Explain the term ***dry running*** as used in program development. (2 marks)

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(b) Explain **three** properties of an algorithm. (6 marks)

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(c) To qualify to get a driving license, an applicant must be 18 years or over. Six candidates applied for the driving license test. Draw a flow chart that would read the name and age of an applicant and display the names of those who qualify. (7 marks)

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1. (a) State **two** differences between binary and octal number systems. (2marks)

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(c) Convert;

 (i) 91B16 to octal (3marks)

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 (ii) 3768 to hexadecimal (3marks)

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 (iii) 9.62510 to binary (3marks)

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1. (a) Identify ***three*** public Universities and three National polytechnics in Kenya where further computer training is offered, in each case state the highest level of qualification that can be acquired in computer training. (6marks)

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(b) Distinguish between ***job replacement*** and ***job displacement*** with reference to computerization. (2marks)

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(c) State**four**reasons why a firm may decide to computerize its operation (4marks)

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(d) An individual has a right to demand guarantee to privacy of personal information stored on a computer. State three examples of such information. (3marks)

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1. A passenger logs onto an airline website and types in the reference number for their flight. Once the passenger accesses their account they can choose their seat and also print out a boarding pass which contains a unique barcode. This barcode is scanned at the airport check-in desk.
2. Name **one** input and **one** output device found at the check-in desk and give a reason for your choice. (2marks)

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1. The training department of an international airline has introduced computer-based training (CBT) to teach foreign languages to its cabin crew.State**two**advantages of using CBT. (2marks)

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(c)The airline company also trains its pilots.

 (i) What type of training is most appropriate to train pilots to manage dangerous situations? (1mark)

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 (ii) State **two**benefits of using this type of training. (2marks)

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(d). A student set up a spreadsheet to compare share prices in six companies over five years.



(i) Write the formula used in cell G5 to find the mean share price for KLN

………………………………………………………………………………………….(1mark)

(ii) Writethe used in cell H5 to find the highest share price for KLN

……………………………………………………………………………………… (1mark)

(iii) If the data in cell E4 was changed to 425, which cells would be automatically updated?………………………………………………………………………………………….. (2marks)

(iv)State the cells that are needed to create a line graph to show the share prices for years 2006 to 2008.

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(v) The student wants to extend the spreadsheet to include share prices for 2010.Describe how the student would do this. (2marks)

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1. (a) State three functions of queries in database systems. (3 marks)

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b) A students' database comprises of students details table and fees received table as shown below:

Students' details tableFees Received table

Surname Admission Number

Middle Name Amount Admission Number Date

First Name Receipt Number

(i) State the primary key field for each table. (2marks)

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ii) State the field that can be used to establish a relationship between the two tables.(1mark)

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c) Explain **three** types of integrity constraints that can be applied on a database system to ensure data consistency. (6 marks)

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(d) State ***three*** reasons whyan antivirus software must be installed on a computer system. (3 marks)

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