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

**FORM 4 (THEORY)**

**– 2½hrs**

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

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

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

**451/1**

**COMPUTER STUDIES**

**Paper 1**

**THEORY**

**Time: 2 ½ Hours**

**INSTRUCTIONS TO CANDIDATES**

* Answer **ALL** the questions in **section A**
* Answer **question 16 (compulsory)** and **ANY OTHER THREE questions** from **section B.**

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| --- | --- | --- |
| **Question** | **Maximum score** | **Actual score** |
| **1-16** |  |  |
| **17** |  |  |
| **18** |  |  |
| **19** |  |  |
| **20** |  |  |
| **TOTAL SCORE** |  |
|

***This paper consists of 14 printed pages***

***Candidates should check the question paper to ensure that all the printed pages are printed as indicated and no questions are missing.***

**SECTION A: (40 MARKS)**

*Answer* **ALL** *questions in the spaces provided*

1. i) Explain the *emerging trends* in microcomputer technology in relation to Size (1 mark)

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………………………………………………………………………………………………………… ii) Mention ***two*** Analogue devices (2 marks)

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 2. i) Identify and briefly describe **three** advantages of using computers in banking (1½ marks)

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 ii) State **two** advantages of using a mouse instead of a keyboard. (1 mark)

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3. State **two** reasons why Magnetic tapes are not commonly used as computer data storage medium

 today (1 mark)

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4. i) Give **two** advantages of the higher number of pixels per square centimeter. (1 mark)

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 ii) Differentiate between *Data interface cable* and *power cable.*  (1 mark)

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iii) Explain **two** differences between *serial* and *parallel* communication ports of a computer .

 (2 marks)

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5. i) What is *line spacing* as used in word processing? (½ mark)

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ii) Describe any **two** line spacing specification used in Microsoft Word. (1 mark)

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 iii) Name the ***two*** documents used in mail merge. (1 mark)

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iv). With reference to the concept of graphics as used in Microsoft word. Explain the *difference*

between object linking and embedding? (1 mark)

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6. Who am I? (3 marks)

i) Am is skilled in software/program development as per requirement and technical operations of

 computer hardware. I also develop and update both system and application software together with

 the associated documentations.

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ii) Am is skilled in designing computer hardware and also improves on existing ones.

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iii) I maintain, update & modify information on the websites to meet new demands by the users. I also monitor the access & use of internet connection by enforcing security measures

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7. During the COVID 19 pandemic, the government advised the citizens to use electronic funds

 transfer and other popular mobile phone money transactions to make payments.

i) State *how* the above method of conducting business would help to curb on the spread of the

 disease. (2 marks)

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ii) What is the meaning of *Electronic Funds Transfer*? (1mk)

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8. Define the term *dual booting* as used in computing. (1 mark)

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9. Differentiate between *cropping* and *grouping*. (2 marks)

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10. Other than flow chart, state **two** tools that can be used to present an algorithm . (2 marks)

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11. Differentiate between a *deadlock* and *interrupt* as used in operating system. (2 marks)

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12. (a) Securem is a company that deals with providing security services to its clients. Name any ***two***

ways the company can protect its computer network from hackers. (2 marks)

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 (b) State **three** characteristics of a suitable password. (3 marks)

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13. During system development the system analyst should consider the correct requirement

 specifications for the new system. State any **four** outcomes that may result from using incorrect

 requirement specifications. (3 marks)

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14. (a) Define the term *Computer Aided Design*. (1 mark)

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 (b) List **two** advantages of using Computer Aided Design. (2 marks)

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15. Explain **two** arithmetic errors that may occur during computerised data processing. (2 marks)

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**SECTION B (60 marks)**

Answer q**uestion 16** and **ANY OTHER THREE** questions from this section in the spaces provided.

16. (a) Give **two** examples of syntax errors in programming. (2 marks)

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(b)ScrabbleTM is a word game where the players are awarded points by creating words from a combination of letters each of which carry a different point value. A player is awarded the points for creating words from the combination. Write a ***pseudocode using CASE*** to read a letter and output the value equivalent to that letter from the following table. (8 marks)

|  |  |
| --- | --- |
| LETTER | VALUE |
| A,E,I,L,N,O,R,S,T,U | 1 |
| D,G | 2 |
| B,C,M,P | 3 |
| F,H,V,W,Y | 4 |
| K | 5 |
| J,X | 8 |
| Z,Q | 10 |

(c) Classify the following programming languages according to their category: (3 marks)

|  |  |
| --- | --- |
| Programming language | Category |
| HTML |  |
| JAVA |  |
| JAVASCRIPT |  |
| PASCAL |  |
| VISUAL BASIC |  |
| LISP |  |

(d) With aid of a diagram, explain the “Repeat Until” construct as used in structured programming

(2 marks)

17. (a) State the **stage** in system development life cycle where each of the following activities are

 carried out:

i. Identifying shortcomings of a system. (1 mark)

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ii. Preparing the system migration plan (1 mark)

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iii. Identifying the technologies that may be used in the proposed system. (1 mark)

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 (b) State **three** roles of a programmer in system development life cycle. (3 marks)

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 (c) E-mail technology has become a very important part of today’s communication. Explain any

 **three** problems associated with using e-mail technology for communication. (6 marks)

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 (d) Sarafina wants to download her favourite movie from YouTube. State any three factors that

 may determine how long it will take her to complete the download. (3 marks)

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18. The following Digital Club Member details were to be entered in a database: Name, Date of

 registration, Registration fee and Class.

1. Prepare a suitable structure showing field names and their field types (4 marks)

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| Field | Data type |
| Name | Text |
| Date of registration | Date |
| Registration fee | Currency or Number |
| Class | Text |

1. Name one other field that the Club Patron may need to add to uniquely identify the records (1 mark)

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(c) Write the statement that can be used to select members of the class form 3. (2 marks)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Name | Date of registration | Registration fee | Class |
|  |  |  |  |  |
| Criteria/ Expression |  |  |  |  |

 (d) The following is an extract from a spreadsheet created to manage sales. Use it to answer the

 questions that follow.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | A | B | C | D |
| 1 | ITEM NAME | UNIT PRICE | UNITS SOLD |  |
| 2 | HDD 300 GB | 7,500 | 2 |  |
| 3 | Optical Drive | 4,500 | 8 |  |
| 4 | DELL Latitude core i5 | 44,500 | 3 |  |
| 5 | DDR4 8GB RAM | 10,000 | 4 |  |
| 6 | Lenovo Yoga Smart Tab | 28,953 | 1 |  |

(i) Write a formula that will compute the number of items whose unit price whose price more than

 10,000 (3 marks)

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(ii) If the formula =$B2\*C$2 was placed in D2, state the output if copied to D3. (2 marks)

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(iii) Write the cell referencing used in c(ii) above. (1 mark)

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(iv) Write the data type that is stored in cell C5 and A6 respectively (2 marks)

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19. a) Define the term attenuation as used in networking and data communication. (1 mark)

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 b) The following are figures of networking cables. Identify each. (2 marks)

 

Figure 1 Figure 3

 

**Figure 2 Figure 4**

**Figure 1 Figure 2**

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|  **Figure 3 Figure 4** |

c) (i) Give **two** examples of network software (2 marks)

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(ii) In a network setup, list any **two** items that may be referred to as data terminal equipment.

(2 marks)

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d) Explain the following terms as used in networking (4 marks)

 (i) Remote Communication

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 (ii) Distributed processing

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e) State **four** functions of a server in a network (4 marks)

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20. (a) Determine the binary equivalent of the octal number 253243. (2 marks)

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(b) Carry out the following binary arithmetic using *ones complement*. In each case leave your answer in

 ***base 10***.

 (i) 1010-108 (5 marks)

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(i) 2BH-9H (6 marks)

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(c) Arrange the following numbers in ascending order. (2 marks)

 1016, 1010, 158, 10112

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