**NAME…………………………………………………… INDEX NO.:………………………...**

**STREAM: .…..…………………………………………… ADM NO: …………………………**

**DATE: …………………….………**

**451/1**

**COMPUTER STUDIES**

**FORM 4**

**AUGUST- 2022**

**TIME: 2½ HOURS**

**MINCKS GROUP OF SCHOOLS**

**FORM 4 EXAM**

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

**451/1**

**COMPUTER STUDIES**

**(THEORY)**

**AUGUST- 2022**

**TIME: 2½ HOURS**

**Instructions to Candidates**

1. This paper consists of two sections A & B.
2. Answer all the questions in section A
3. Answer question 16 and any other three questions in section B.

**SECTION A(40 MARKS)**

***Answer ALL questions in this section in the spaces provided.***

1. Define term artificial intelligence. (1mk)

….…………………………………………………………………………………………………………………………………………………………………………………………….

1. List three roles of system analyst. (3mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Outline three way IEBC will use technology to ensure free and fare election. (3mks)

….…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Write the following acronymes in full
2. WIFI

….……………………………………………………………………………………………

1. HDMI

….…………………………………………………………………………………………….

1. a) List two reasons why USB interface has become popular than other interfaces.(2mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..

b) Give three disadvantage of using serial file organisation. (3mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..

1. Name three common malicious programs that are harmful to computers. (3mks)

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1. Define the term deadlock as used in operating system. (1mk)

….…………………………………………………………………………………………………………………………………………………………………………………………….

1. Give any three categories of functions that are available in ms excel. (3mks)

….…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Differentiate between count and count if functions as used in ms excel. (2mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Explain why liquid-based powder fire extinguishers are discouraged in a computer laboratory. (2mks)

….…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Explain the following terms as used in computer crimes. (2mks)
2. Piracy

….……………………………………………………………………………………………………………………………………………………………………………..

1. Industrial espionage

….…………………………………………………………………………………………………………………………………………………………………………….

1. List three advantages of using fibre optic cable in networking. (3mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Explain two database models. (4mks)

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1. a) Give three ways in which ICT can be used to conserve forests. (3mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..

b) Give three factors to consider when selecting ICT related career. (3mks)

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1. List four sub categories of system software. (4mks)

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**SECTION B (60 MARKS)**

**Answer question 16 and any other three questions in this sections.**

1. a) List two examples of
2. Third generation languages. (2mks)

….……………………………………………………………………………………………………………………………………………………………………………..

1. Object oriented programming languages (2mks)

….……………………………………………………………………………………………………………………………………………………………………………..

b) Differentiate between source code and object code. (2mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..

c)Draw a flow chart that will take two numeric values X and Y . compare the two numbers to give the following output:

If X is more than Y, the program should compute the difference of the two numbers.

If X is less than Y, the program should compute the sum of the two numbers.

If X is equal to Y, the program should compute the product of the two numbers.

(7mks)

1. List two repetitive control structures. (2mks)

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1. a) Differentiate between the following as used in data communication.
2. Baseband and broadband (2mks)

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1. Multi-plexing and demulti-plexing (2mks)

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b) ABC company intends to start their operations across all the East African Countries.

(i) Recommend to them the most ideal computer network that they should use. (1mk)

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(ii)List three challenges the company is likely to encounter while using the network.(3mks)

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1. With an example state three networking elements that the company will need for them to implement the network. (6mks)

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c) Give one advantage of using unbound media for networking. (1mk)

….…………………………………………………………………………………………………………………………………………………………………………………………….

1. Study the worksheet below and answer the questions that follow.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | A | B | C | D | E | F |
| 2 | **SKY WAYS AGENCIES** | | | | | |
| 3 | Product | Region 1 | Region 2 | Regions 3 | Region 4 | TOTAL |
| 4 | Rexona | 3400 | 3700 | 4000 | 4100 |  |
| 5 | Lifeboy | 2500 | 2600 | 2100 | 2500 |  |
| 6 | Omo | 6000 | 6100 | 6300 | 1600 |  |
| 7 | Ushindi | 1200 | 1500 | 1400 | 6400 |  |
| 8 | Carmel | 7000 | 6900 | 7200 | 8000 |  |
| 9 | Total |  |  |  |  |  |
| 10 | Maximum |  |  |  |  |  |
| 11 | Average |  |  |  |  |  |

1. Write functions that can be entered to get total, maximum and average of each region. (3mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Write down the function that returns the number of sales in the four regions whose values is greater than or equal to 2000. (2mks)

….……………………………………………………………………………………………………………………………………………………………………………………………

1. The prices for region 4 were reduced with n% value which was placed in cell C13. Write a formulae to calculate the new price of product Rexona and applied to other products in the same region. (3mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Differentiate between stroke and fill as used in D.T.P (2mks)

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1. i) Define text wrap (1mk)

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(ii)List four ways you can wrap text on an object. (4mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. a) State three ways in which a signed binary number can be represented. (3mks)

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b) Convert the following numbers into binary form

(i) 24710 (2mks)

(ii)9AC16 (2mks)

c) Using two complements compute 2710 - 1310 and leave your answer in binary form

(use 8 bits) (3mks)

d)Differentiate between logical file and physical file. (2mks)

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e)Explain three parameters that can be used to measure data integrity. (3mks)

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1. a) i) State the importance of information fact finding in system development. (1mk)

….…………………………………………………………………………………………………………………………………………………………………………………………….

(ii)State any two advantages and two disadvantages of using interview method for information gathering. (4mks)

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

b)Explain three system development theories and methods. (6mks)

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c) Your school wishes to replace the original system with an information system.

(i) With a reason, advise the school on the best change over strategy to implement.(2mks)

….…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

(ii) Give two challenges the school may encounter while implementing the new system.

….……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………