THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education

451/1 – COMPUTER STUDIES – Paper 1
(THEORY)
Nov. 2019 – 2½ hours

Name .............................................  Index Number .............................................
Candidate's Signature ......................  Date ..........................................................

Instructions to candidates

(a) Write your name and index number in the spaces provided above.
(b) Sign and write the date of examination in the spaces provided above.
(c) This paper consists of two sections: A and B.
(d) Answer all the questions in Section A.
(e) Answer question 16 and any other three questions from section B.
(f) All answers should be written in the spaces provided on the question paper.
(g) This paper consists of 16 printed pages.
(h) Do not remove any pages from this booklet.
(i) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
(j) Candidates should answer the questions in English.

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SECTION A

Answer all the questions in this section in the spaces provided.

1. State the hardware technological differences between the second generation and the third generation computers. (2 marks)

2. State two ways of ensuring proper ventilation in a computer room. (2 marks)

3. Convert the decimal number 20.373 to its binary number system equivalent. (3 marks)
4. Peter has installed internet in his home computer in order to use it for browsing. State **three** ways in which he would prevent viruses from infecting the computer. (3 marks)

5. State **three** ways of transforming a picture embedded in a Desktop Publishing programme in order to fit in a designated space on a document. (3 marks)

6. Differentiate between a *line printer* and a *page printer* as used in computers. (2 marks)

7. Describe *virtual reality* as used in computers. (2 marks)
8. State the function of each of the following features of an email software:

(a) Inbox

(b) Draft

9. (a) Explain the term *toggle key* as used in computer keyboard.

(b) List examples of toggle keys on a computer keyboard.

10. State the type of error that would occur in data processing for each of the following cases:

(a) Entering the number 315 instead of 351.

(b) Entering the text “Kwys” instead of “Keys”.
11. State four factors to consider when selecting an input device for use in a computer room. (4 marks)

12. State three functions of Un-interruptible Power Supply (UPS). (3 marks)

13. Distinguish between a page break and a column break as used in a word processor. (3 marks)
14. State three factors to consider when selecting an operating system to instal in a computer. (3 marks)

15. Differentiate between analogue data and digital data as used in computers. (2 marks)
SECTION B

Answer question 16 and any other three questions from this section.

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

(b) Explain three properties of an algorithm. (6 marks)
(c) To qualify to get a driving license, an applicant must be 18 years or over. Ten 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)
17. (a) State **four outcomes** that may result from using incorrect requirement specifications during systems development. (4 marks)

(b) A school opted to use direct change over approach when installing a new system. Explain **three challenges** that the school may face as a result of this approach. (6 marks)

(c) State **three reasons** that may lead an organisation to instil an intranet. (3 marks)
18. (a) State **three** hardware devices that may be required to connect a computer to an existing local area network.

(b) A publisher intends to use a desktop publishing programme to create a publication which is to have many graphics. State **three** ways in which the graphics may be acquired for this purpose.
(c) Interpret each of the following spreadsheet formula:

(i) \[ = \text{countif(D2:D9, ">"} \& B4) \] (2 marks)

(ii) \[ = \text{sumif(B3:B11, "4M", D3:D11)} \] (2 marks)
(d) (i) The following are the fields of products table in a database created to store records of products manufactured in a factory:

- product number
- product name
- price
- product description

I. State the appropriate data type for each field. (2 marks)

II. State three properties to be put in place during table design to ensure integrity of the data entered. (3 marks)
19. (a) Explain three features of a graphical user interface as used in computers. (6 marks)

(b) State the function of each of the following computer keyboard keys:

(i) Caps Lock (1 mark)

(ii) Shift (1 mark)

(iii) Home (1 mark)
(c) Using two's complement notation, determine the value of the operation $25_{10} - 29_{10}$.

(6 marks)
20. (a) Distinguish between *Computer Aided Instruction (CAI)* and *Computer Aided Learning (CAL)*. (4 marks)


(b) (i) **State four** activities that may be carried out when disposing off an old system in an organisation. (4 marks)


(ii) **State four** ways of getting user specifications during systems design. (4 marks)
(c) State three benefits gained from the advancement in technology in the music industry.

(3 marks)