Name………………………………………………….   Adm No…………………/…….

Date …………………………..   Candidate's Signature……………………

451/1
COMPUTER STUDIES
Paper 1
Time: 2 ½ Hours

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

<u>INSTRUCTIONS TO CANDIDATES</u>

- Write your **name, School** and **index number** in the spaces provided above.

- This paper consists of Two sections **A & B**

- Answer **ALL** the questions in Section **A**

- Question 16 is compulsory

- Answer any **THREE** questions in section **B**

- All answers to ALL questions must be written in the spaces provided in the question paper

<u>FOR EXAMINERS USE ONLY</u>

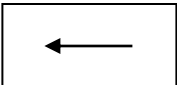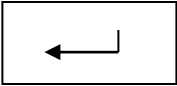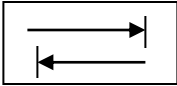| SECTION	QUESTION	MAXIMUM MARKS	CANDIDATES SCORE
A	1-15	40	
B	16	15	
	17	15	
	18	15	
	19	15	
	20	15	
TOTAL SCORE		100	

SECTION A (40 MARKS)

Answer <u>all</u> the questions in this section in the spaces provided

1. State any **two** peripheral devices that are powered by the system unit. (1 mk)

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2. The following are symbols of some keys found on the keyboard. Name the keys represented by the symbols. (2 mks)

| ← | _____ | ⇧ | _____ |

| ↵ | _____ | ⇄ | _____ |

3. Explain any **three** functions of system software in a computer (3mks)

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4. As a computer student you have been asked to assist in buying an input device. State any **four** factors to consider when buying input devices. (4mks)

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5. i. The arithmetic logic unit, the control unit and the main memory use electrical pathways or links called buses. State and explain the three types of buses. (3mks)

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ii. What is the role of special purpose memories in the microprocessor? (1 mk)

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6. Outline the **three** differences between primary memory and secondary memory. (3mks)

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7. Citing relevant examples state **two** advantages of integrated software as opposed to single purpose. (2mks)

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8. a. Define the term mail merging (1 mk)

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b. Name **two** files that are created in mail merging process (1mks)

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9. (a) Distinguish between a workbook and a worksheet as used in spreadsheets (2mks)
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(b) What is the meaning of "what if analysis" with respect to spreadsheet? (1mk)
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10. Define the following terms in relation to internet   (2 mks)

   i).   Downloading

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   ii).   Hyperlink

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11.   Benjos was instructed by his teacher while typing a Microsoft word document to replace
       all the occurrences of the word MS with Microsoft. Highlight the steps to do this   (3mks)

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12.   What is the difference between logical and physical file?   (2mks)

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13.   Explain any **three** types of computer processing files.   (6mks)
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14.   Give a reason why HTML is not considered as a true programming language.
(1mk)

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15. (a) Define the following computer crimes
     (i) Piracy   (1mk)

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     (ii) Industrial espionage   (1mk)

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16. (a) Draw a flowchart for a program that is to prompt for N numbers, accumulate the sum and them find the average. The output is the accumulated totals and the average. (5 mks)

(b) Write a pseudo code for the above program. (4 mks)

(c) Explain **three** types of control structures use in programming. (3mks)

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17. (a)   i. Subtract 110_2 from 11010_2 (1mk)

   ii. Find the sum of binary number 101.101_2 and 110.100_2 (1mk)

(b)   i. Convert binary number 11010110.1001_2 into octal number. (1mk)

   ii. Convert binary number 11010110.1001_2 into hexadecimal number. (1 mark)

(c)   Convert the following numbers to their decimal equivalent
   i. 11.011_2 (2 marks)

   ii. 0.11011_2 (2 mrks)

(d) i. Convert $3BD_{16}$ to Octal. (3mks)

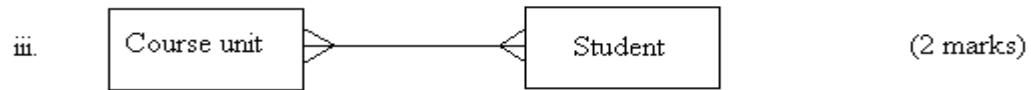   ii. Using one's complement, calculate $5_{10} - 9_{10}$. use six bit in your calculation. (3mks)

(e) State the following types of transcription errors: (2 marks)
   i. 3455 instead of 3456

   ii. Simth instead of Smith

18. (a) State and explain the following types of relationship as used in database design

i. | Student | ——————< | Books | (2 marks)

ii. | Student | ——————— | Registration number | (2 marks)

iii. | Course unit | >——————< | Student | (2 marks)
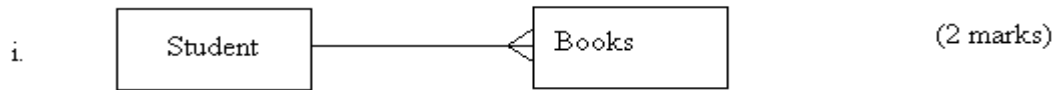
   (b) i. Explain the difference between primary key and an index key as used in database application
                                                                (2 marks)

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ii. Outline the functions of a primary key (2 marks)

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(c) Describe the following types of database model
   i. Network model (2 marks)

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ii. Relational model (2 marks)

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19.   (a) i. What is an operating system? (1 mark)

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ii. Maintaining security is one of the functions the operating system. Explain how the
    operating system maintains security (2mks)

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iii. Explain how an operating system controls I/O devices. (2mks)

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(b) What does the following control measures against computer crime involve? (5 mks)
   i. Audit trail

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ii. Data encryption

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    iii. Log files

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    iv. Passwords

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    v. Firewall

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(c) Briefly explain what happen during power on self test (POST)   (3 mks)
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(d) Explain the functions of complementary metal-oxide semiconductor (CMOS)   (2 mks)
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20. a) State **two** advantages and two disadvantages of the ring network topology

Advantage (2mks)

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Disadvantages (2mks)

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b) State **two** roles and responsibilities of each of the following ICT professionals

i) Webmaster (2mks)

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ii) Network Administrator (2mks)

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iii) Computer scientists (2mks)

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iv) System Administrator (2mks)

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v) Software Engineer (2mks)

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c) Explain the term accreditation as used in education (1mk)

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