

Name.....Adm. No.....Class.....

451/1  
COMPUTER STUDIES  
PAPER 1  
(THEORY)  
2022  
TIME: 2 ½ HRS



**FOCUS A365**  
A M A N Y A M F R A N C I S E . C O M P R O D U C T I O N

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

**Instructions to candidates**

1. This paper consists of TWO sections; A and B
2. Answer all questions in sections A.
3. Answer question 16 and any other THREE questions from section B.

**FOR EXAMINERS USE ONLY**

SECTION	QUESTION	
A	1 – 15	
B	16	
	17	
	18	
	19	
	20	
TOTAL MARKS		

**This paper consists of 12 printed pages.**

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

**SECTION A (40 MARKS)**  
**ANSWER ALL QUESTIONS IN THIS SECTION**

1. Write the abbreviation ICT in full and describe ONE area where it is applied in today's society. (2marks)

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2. Differentiate between the following terms as used in computing:  
(a) Cache memory and buffer memory (2marks)

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(b) Blog and hyperlink (2marks)

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3. Differentiate Kerning and tracking as used in desktop publishing (2mks)

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4. Special purpose computers are designed to serve a specific purpose or to accomplish one particular task. Give FOUR examples of such computers. (2marks)

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5. State how the following devices work in a computer. (2marks)  
(i) Light pen

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(ii) Graphics tablet

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6. What are some of the things that would accompany newly purchased software? (3marks)

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7. The first column in the table below contains the formulae stored in cell C10 of a spreadsheet .Enter the formulae as they would appear when copied to cell F15 of the same spreadsheet. (3marks)

FORMULAE IN C10	FORMULAE IN F15
=A5*B5	
=A\$5	
=4/B\$6	

8. (a) Identify the name for each of the following types of printers. (2 marks)



A



B

(b) Give TWO advantages and ONE disadvantage of printer A over B. (3marks)

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9. (a) What is a deadlock in reference to operating systems? (1mk)

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(b) Describe **resource allocation** as a function of operating system. (2marks)

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10. Five students Faith ,Carol, Jane ,Caleb and Benson scored the following marks inMathematics:35,67,98,44,54.They were recorded in cells B3 to cell B7.Their teacher wanted to rank them in descending order,so as to award them.

(a)Write down an appropriate function that the teacher used. (2marks)

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(b) Their grades were also assigned as follows:

80-100 .....A

60-79 .....B

40-59 .....C

Below 40.....Fail.

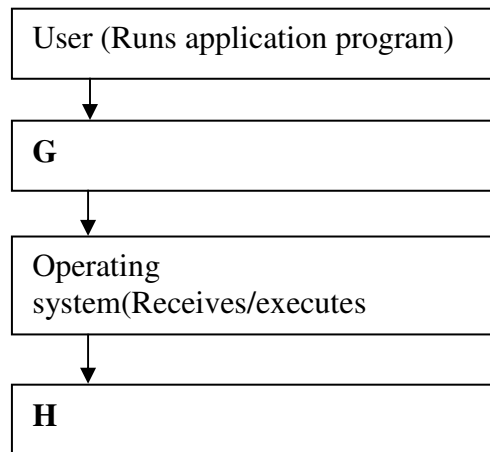
Write down the formula used to assign the grades above.

(2marks)

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**11. Distinguish between the roles of **disk formatting** and **disk fragmentation** as used in disk management**  
(2marks)

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**12. The figure below shows the structure of the role of operating system. Identify the parts labeled **G** and **H**.**

(2marks)



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**13. Draw the illustration symbols of the following cables.**

(i) Parallel cable

(1mark)

(ii) USB cable

(1 mark)

**14. A student intends to buy a new operating system for his computer. Outline TWO factors he would consider when purchasing it.**  
(2marks)

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**15. Define pixels and state the role they play in the screen display**

(1mark)

**SECTION B (60 MARKS)**

**Answer question 16 and any other THREE questions from this section B**

16. (a) Define the following terms

(i) Encapsulation

(1mark)

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(ii) Source code

(1mark)

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(b) During exam analysis Mr. Karimi enters first names of 50 students in a program. The names either have **3 letters** (e.g. Tim) **4 letters** (e.g. Mark), **5 letters** (e.g. Faith) and 6 letters (e.g. George).

(a) Write a program logic using **pseudocode** which:

(i) Inputs 50 names

(ii) Outputs how many names had 3,4, 5 or 6 letters

(iii) Outputs the % of names entered which were outside this range

(7marks)

(c) Draw a flowchart for the above pseudocode.

(6marks)

17. (a) The data processing cycle is a set standard used during data processing. By use of a well labeled diagram, explain the stages of Data processing cycle. (4 marks)

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(b) Most businesses interact with transaction files more than any other files during data processing. What is a transaction file? (1 mark)

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(c) Differentiate between **batch processing** and **multiprocessing** as used in data processing. (2 marks)

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(d) Explain THREE elements of a computer file. (3 marks)

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(e) System development life cycle is divided into two parts, *the development stage* and *the operation and support stage*. Name the two stages within the operation and support stage of the system development life cycle. (2 marks)

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(f) In fact finding method, observation is one of the first hand method used to gather information. State TWO disadvantages of this method? (1 mark)

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(g) Explain any TWO reasons why a new information system needs to be developed (2 marks)

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**18.** (a) Briefly explain the following coding schemes (3 marks)

i) Binary coded decimal (BCD)

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ii) Extended Binary Coded Decimal Interchange Code (EBCDIC)

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iii) American Standard Code for Information Interchange (ASCII)

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(b) Convert the decimal number  $79_{10}$  to its binary equivalent (2 marks)

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(c) Convert the number  $7535.125_8$  to decimal

(2 marks)

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(d) Using an 8-bit notation, subtract  $26_{10}$  from  $18_{10}$ , using **twos complement** and give your answer in decimal. (4 marks)

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(e) Perform the following calculations:

(i)  $11101_2 + 1011_2 + 111_2$  (2 marks)

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(ii)  $10101110_2 - 101111_2 - 11111_2$  (2 marks)

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19. (a) Define the following terms as used in networking.

(2 marks)

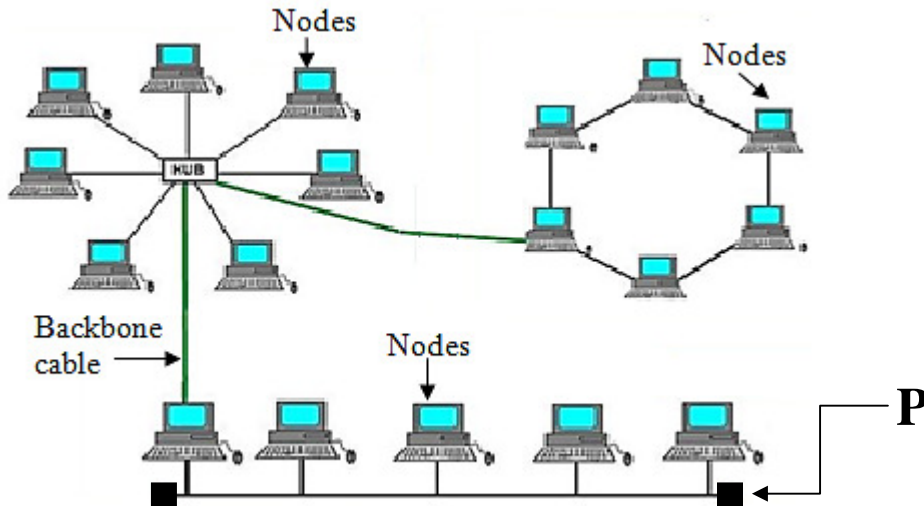
i. Router

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ii. Network protocol

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(b) Below is a diagram of a network topology.



i. Give the name for the topology above.

(1 mark)

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ii. State ONE advantage and ONE disadvantage of using the topology named above.

(2 marks)

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iii. Identify the device labeled **P** on the network segment and explain its purpose.

(2 marks)

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(c) Most modern network systems have largely embraced the use of fiber optic cable for its network. State THREE advantages to support this.

(3 marks)

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(d) (i) State and explain TWO computer crimes that might result from linking computers together. (4 marks)

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(ii) State any THREE detection and prevention measures used to curb unauthorized access in a computer network. (3 marks)

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20. (a) (i) State THREE roles performed by a computer engineer. (3 marks)

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(ii) What is an expert system as used in artificial intelligence? (1 mark)

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(b) Differentiate between **Computer Aided Instruction** and **Computer Aided Learning**. (2 marks)

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(c) (i) Define video conferencing. (1 mark)

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(ii) Give any TWO application areas of video conferencing. (2 marks)

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(d) (i) State the effects of ICT on the following aspects, respectively.

- Employment

(3 marks)

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- Environment

(2 marks)

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(e) State TWO advantages of automated production.

(2 marks)

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