

GIANCHERE FRIENDS HIGH SCHOOL
 Kenya Certificate of Secondary Education
451/1 - COMPUTER STUDIES – Paper 1
(THEORY)
FEB 2020 – 2½ HOURS

Name.....Index Number.....

Candidates Signature..... Date.....Class:

Instruction to candidates

- a) Write your name and index number in the space 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 space provided in the question paper.
- g) **This paper consists of 13 printed pages.**
- h) **Do not remove and 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.**

For Examiner’s Use Only

Section	Question Number	Candidate’s Score
A	1-15	
B	16	
	17	
	18	
	19	
	20	
Total		

SECTION A

1. Define the phrase ‘**database management system**’ (1 Mark)

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2. What is an internet service provider? (2 mark)

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3. Discuss how humidity can be controlled in the computer laboratory (2 marks)

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4. Describe drag and drop as a mouse technique (1 Mark)

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5. State **two** limitations of entering data into a computer system using a touch sensitive input device. (2 marks)

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6. State **three** differences between COM port and LPT port (3 marks)

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(b) State **three** circumstances under which voice input would be preferred over other method of data capture. (3 marks)

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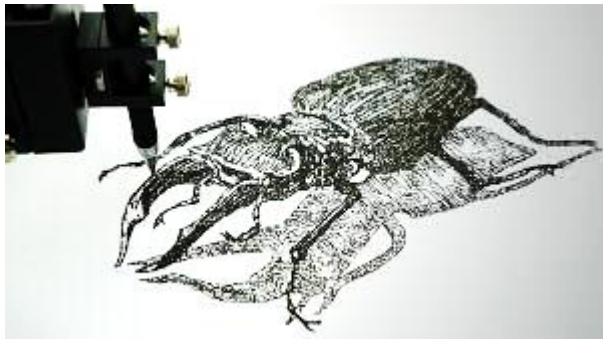
7. As Brik was working in his computer, he realized that the program he was running used more memory than the available memory in his computer. Identify the extra memory used by the program and where it is located. (2 Mark)

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8. The picture below shows a machine hand drawing a beetle



a) Identify the machine being used (1 mark)

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b) Identify **two** advantages of the machine over a laser jet printer (2 marks)

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9. State **three** Factors to consider when choosing a secondary storage device (3 marks)

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10. State how an operating system handles the following in a computer system

(a) Errors

(2 mark)

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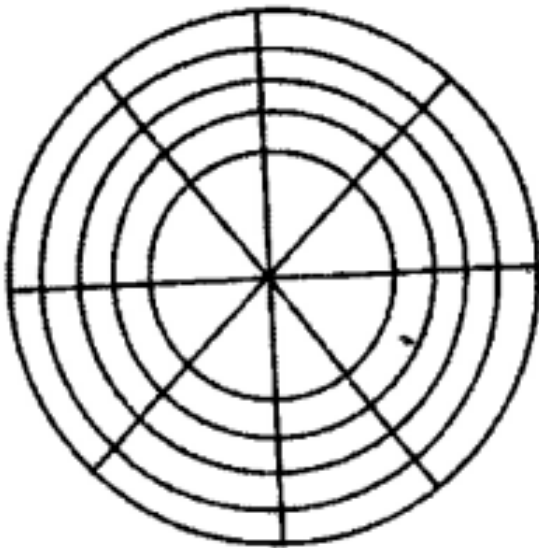
(b) Interrupt

(2 mark)

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11. The diagram below shows a formatted plate surface of a storage disk.

(3 marks)



Shade and label:

- a) One sector
- b) One block
- d) One track

12. State functions of the following OSI layers

a) Session

(1 mark)

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b) Network

(1 mark)

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c) Physical layer

(1 mark)

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13. During database construction, it is necessary to consider field properties for each table field. With relevant examples, state the functions of the field properties listed below.

a. Field size (1 mark)

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b. Input Mask (1 mark)

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14. a) Differentiate between Bcc and Cc as used in emails. (2 marks)

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b) Discuss real-time processing mode and state how it can be effectively used in a bank (3 marks)

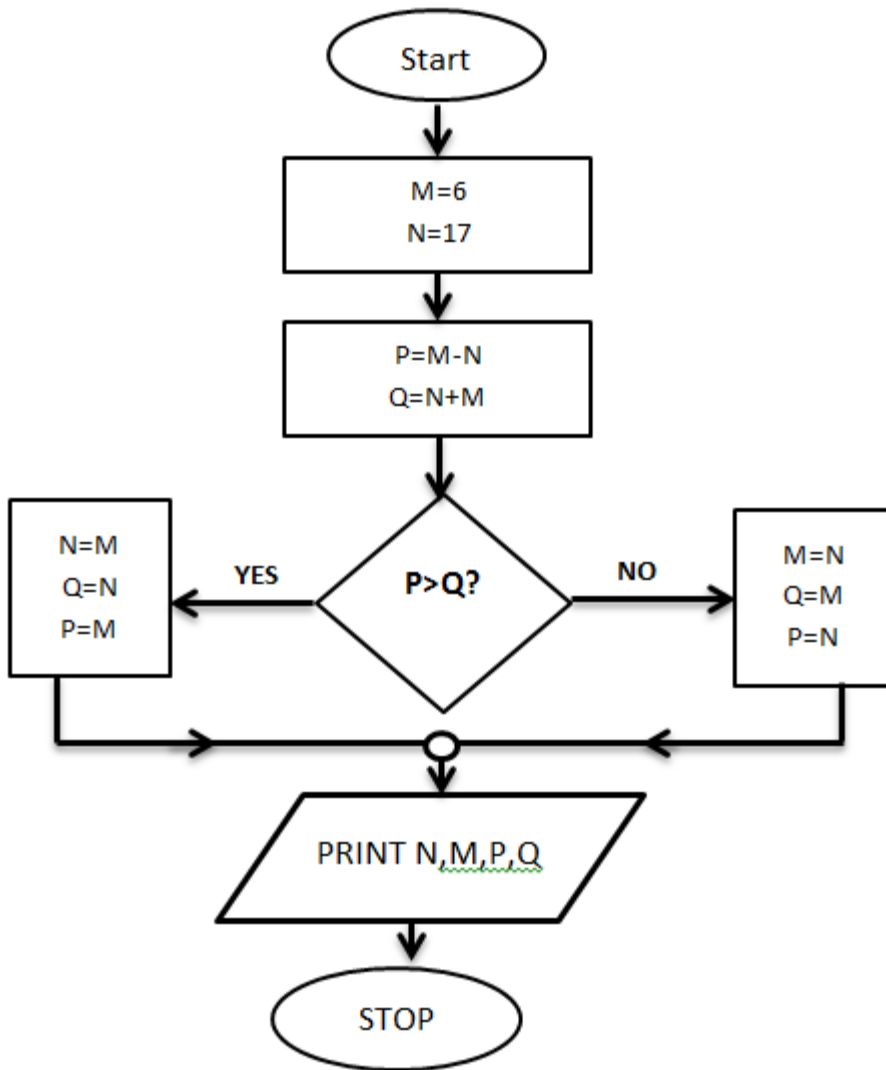
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15. In relation to DTP, state the purpose of frames. (1 mark)

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SECTION B - Answer question **16** and any other **three** questions from this section.

16 (a) Study the flowchart below and answer questions that follow:



i) Name the control structures used in the flowchart. (4 marks)

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ii) Determine the values of M, N, P and Q. (4 marks)

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iii) Write the pseudocode for the flowchart.

(7 marks)

17. a) A supermarket uses a computer system which operates in both batch mode and real time transaction mode.

(i) State **two** task which could use batch processing.

(2 marks)

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(ii) State two task which must be done in real time mode.

(2 marks)

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b) State **three** ways in which data loses integrity in an information system (3 marks)

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c) A school keeps a spreadsheet of examination results in four subjects. Part of the spreadsheet is shown below.

	A	B	C	D	E	F	G	H
1	Name	Class	Maths	Science	IT	English	Average Mark	Pass/ Fail
2	Allen	11A	33	24	19	44	30	
3	Dyos	11B	41	54	70	31	49	
4	Kegg	11A	82	69	57	52	65	
5	Khan	11C	44	21	50	85	50	
6	Kolacz	11A	73	51	73	51	62	
7	Lenski	11B	17	41	40	34	33	
8	Peruza	11C	87	72	64	61	71	

(i) Which column has been used to sort the data? (1 mark)

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(ii) What formula has been entered in cell G2 to calculate Allen's average mark? (1 mark)

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(iii) The IT results need to be sorted so that the highest mark is at the top. Describe how this sort could be done. (2 marks)

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(iv) A formula is entered in cell H5, "Pass" appeared as output. What formula has been entered? (2 mark)

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(v) State the validation check that should be carried out on data entered in cells C2 to F8 to ensure values over 100 are not input. (1 mark)

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(vi) The school has kept the spreadsheets of all the examination results for the last five years. What feature of the spreadsheet software would allow the results to be easily compared? (1 mark)

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18. a) Define the following web related terms:

i) Web browser (1 mark)

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ii) Hyperlink (1 mark)

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iii) Hypertext document. (1 mark)

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b) List **six** activities performed on the web. (3 marks)

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c) An institution has ten stand-alone computers.

i) Suggest with reasons the most appropriate topology required to inter-connect the computers. (3 marks)

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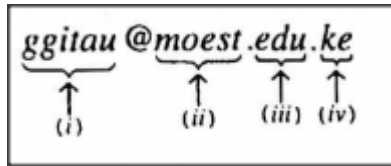
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ii) State the necessary steps required to connect the computers to the Internet. (4 marks)

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d) Below is an email address (2 marks)



Name the parts labeled:

- i)
- ii)
- iii)
- iv)

19. Network software can be divided into Network Operating System (NOS) and Network Protocols

a. State any four administrative activities of the Network Operating System (4 Marks)

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b. Differentiate between repeaters and routers (2 marks)

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c. State any **three** advantages of twisted pair cable

(3 Marks)

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d. Using eight bit two's complement to perform the calculation below leaving your answer in decimal number $13_{10} - 38_{10}$

(4 Marks)

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e. Convert 257_8 to its equivalent Hexadecimal number

(2 Marks)

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20. (a) Explain how data in a computer system can be secured using:

(i) Password (2 marks)

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(ii) Audit trail (2 marks)

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(iii) Firewall (2 marks)

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(b) A manager in XYZ Company wishes to replace the current manual system with a computerized one in organisations.

(i) Explain the reasons for conducting the following activities in system implementation stage.

a) Staff training (2 marks)

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b) File conversion (2 marks)

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(ii) State **three** factors to be considered in input requirements specifications stage. (3 marks)

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a) State **two** circumstances under which the manager may opt to use phased changeover strategy when introducing the system into the organization. (2 marks)

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