

451/1 - **COMPUTER STUDIES** – Paper 1

(THEORY)

July 2018

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)

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

Date:.....Signature:.....

Instructions to candidates

1. Write your name and index number in the spaces provided above.
2. Sign and write the date of examination in the spaces provided above.
3. This paper consists of TWO sections; A and B
4. Answer all questions in sections A.
5. Answer question 16 and any other THREE questions from section B.
6. This paper consists of 14 printed pages.
7. Do not remove any pages from this booklet.
8. Candidates should check to ensure that all pages are printed as indicated and that no question is missing.
9. Candidates should answer the questions in English.

For Examiner's Use Only

Section	Question	Candidate's score
A	1 – 15	
B	16	
	17	
	18	
	19	
	20	
TOTAL MARKS		

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

1. What is a dedicated computer? (1 mark)

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2. (a) Parallel computer technology is highly applicable in modern organizations. Explain how a parallel computer works. (2 marks)

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(b) The figure displayed below was used as a major component to implement the processor technology in the third generation computers. Identify its name. (1 mark)



3. Explain how analog computers are used in industries that manufacture steel products. (2 marks)

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4. A computer controlled simulator can be used to help train aircraft pilots. (a) Give **two** reasons why such a system is used. (1 mark)

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(b) An expert system is defined as a computer system that mimics the thought process and reasoning of experts in specific areas such as medical diagnosis, complex financial decisions, weather forecasting, mining & exploration, complex geographical analysis etc.

State **three** components of an expert system. (3 marks)

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5. A well-lit lab is important to avoid eyestrain that causes headache, fatigue and stress.
(a) State any **two** safety precautions that can be observed to prevent eye-related issues. (2 marks)

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(b) List any **two** tools required when replacing a computer processor with a new one. (2 marks)

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6. State **two** reasons why a computer needs more RAM (2 marks)

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7. Differentiate between the following terms as used in spreadsheet application

i) Statistical analysis and forecasting (2 marks)

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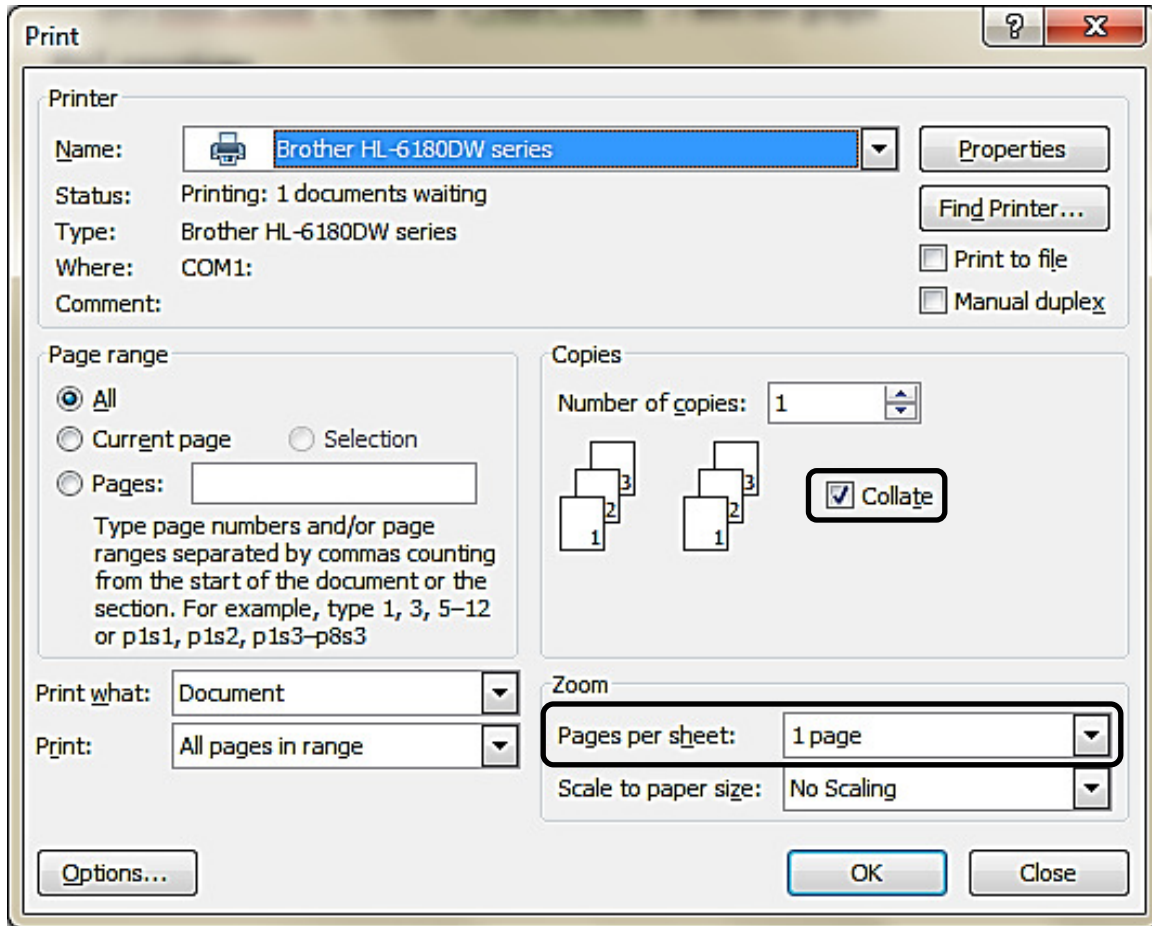
ii) Absolute referencing and relative referencing (2 marks)

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8. (i) State **four** categories of input devices. (2 marks)

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(ii) The diagram below represents a printer dialogue box used when you want to print.



State the functions of the following labels in the diagram (2 marks)

a) Collate

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b) Pages per sheet

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9. State **three** types of Action queries as used in databases. (3 marks)

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10. (i) Organizations can use proprietary or open source software. Describe what is meant by the term 'proprietary software'. (2 marks)

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(ii) Defragmentation software.

(1 mark)

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11. A family's home network consists of several computers linked together wirelessly through a router which also provides access to the Internet.

(a) Briefly explain, any **TWO** security threats to this network (At least **one** threat should be from inside the home and **one** threat from outside.) (2 marks)

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(b) Explain **one** security measure that the family could take to protect their network from the external threat, given in your answers above in (a). (1 mark)

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12. (a) Differentiate between fill and stroke as used in desktop publishing (2 marks)

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(b) Margaret claims that DTP is superior to a word processor. Give a reasons why this true. (1 mark)

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13. HDMI, Bluetooth, SCSI, WIFI are some of interface connection technologies that are emerging in most electronic and computing devices. Mention any other **two** interface connections (cable or wireless) that are used with modern devices in transmitting data in computers. (2 marks)

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14. Backup is a vital aspect in secondary storage; they include Cloud storage, hard disk, flash drives, Optical discs, SD cards, Memory cards, etc.

(a) Define what is meant by cloud storage. (1 mark)

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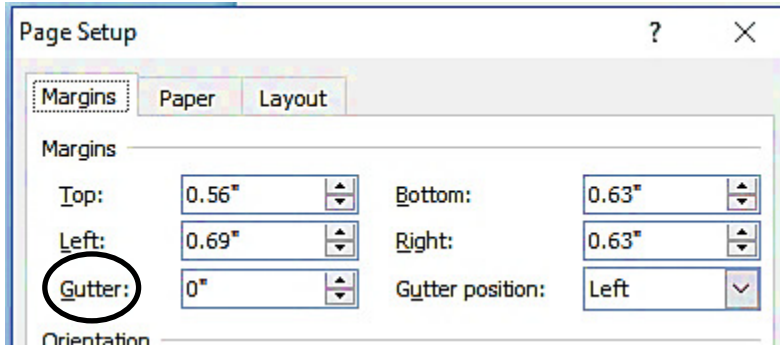
(b) State two benefits of cloud storage in computing. (1 mark)

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15. (a) Differentiate between first-line indent and hanging indent as used in word processing. (2marks)

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(b) The figure below show an extract of a page setup dialog box. Use it to answer questions that follow.



(i) What is the function the part marked with a circle? (1 mark)

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SECTION B (60 MARKS)

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

16. (a) Define the term encapsulation as used in programming (1 mark)

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(b) Study questions that

(i)

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1101 1101
1110 001
111 000
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the languages follow;

(ii)

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LDA B,10
ADD B,20
STOP A,B
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below then answer the

Identify the two programming languages (i) and (ii) above. (2 marks)

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Explain what each line in code (ii) does (2 marks)

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(c). Determine the output of the algorithm below. (4 marks)

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FOR X = 1 to 6 Do
  R=X
  WHILE R >= 1 DO
    PRINT R
    R=R-1
  ENDWHILE
ENDFOR
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17. (a) Explain the following data representation coding schemes. (3 marks)

(i) Enhanced BCD

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(ii) EBCDIC

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(iii) ASCII-8

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(b) (i) Convert the binary number 0111110111000000 to its base 16 equivalent. (2 marks)

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(ii) Using eight bits and two's complement, subtract 78_{10} from 17_{10} . Give your answer in decimal notation. (4 marks)

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(iii) Subtract 12_{10} from 19_{10} using direct binary subtraction. (3 marks)

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(c) What is the decimal equivalent of the binary number 110.101_2 (2 marks)

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18. (a) Requirement specification is a stage where the system analyst comes up with the detailed requirements. List **five** requirement specifications in a system development. (5 marks)

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(b) State **three** areas that must be addressed during the implementation of a system. (3 marks)

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(c) Differentiate between technical feasibility and operational feasibility (2 marks)

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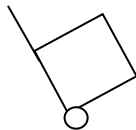
(d) (i) Define the structured approach theory of system development. (1 mark)

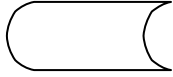
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(ii) Differentiate between modular flowchart and system flowchart. (2 marks)

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(iii) Name the flowchart symbols below. (2 marks)





19. (a) State **four** examples of bounded communication media.

(2 marks)

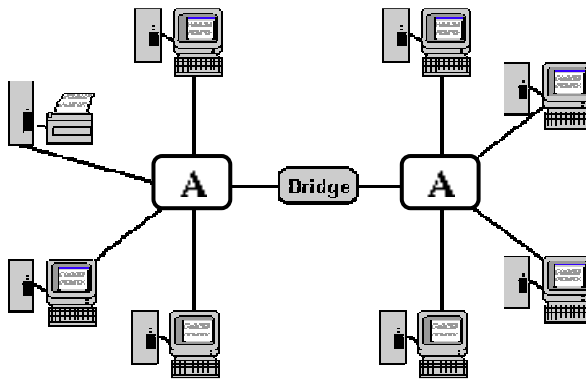
(b) Unsolicited bulk e-mail messages are known as 'spam' or 'junk' mail. Give **one** reason why these mails are a problem for users.

(1 mark)

(c) The office has a fast Internet connection for transferring information. However, sometimes the Internet runs slowly. Give **two** reasons why this could be the case.

(2 marks)

(d) The diagram below shows a networking device called a **bridge** used in networking.



(i) State **three** functions performed by a bridge.

(3 marks)

- (ii) The device labeled **A** represents a device that is used to connect multiple computers in the same network or a single LAN. It transmits signals by broadcasting them to all the computers on the network.

Name the device labeled **A** (1 mark)

- (e) State any **three** factors to consider when choosing data transmission media. (3 marks)

- (f) Define the following terms as used in networking.

- Physical topology (1 mark)

- Logical topology. (1 mark)

- Network protocol (1 mark)

20. (a) Differentiate between multiprogramming and multiprocessing as used in data processing. (2 marks)

- (b) State **two** ways of minimizing threats to data integrity (2 marks)

(c) Differentiate between computational errors and transcription errors

(2 marks)

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(d) Explain the following terms:

(2 marks)

(i) Disk compression

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(ii) Logical drive

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(e) Differentiate between Kernel and shell as used in operating systems.

(2 marks)

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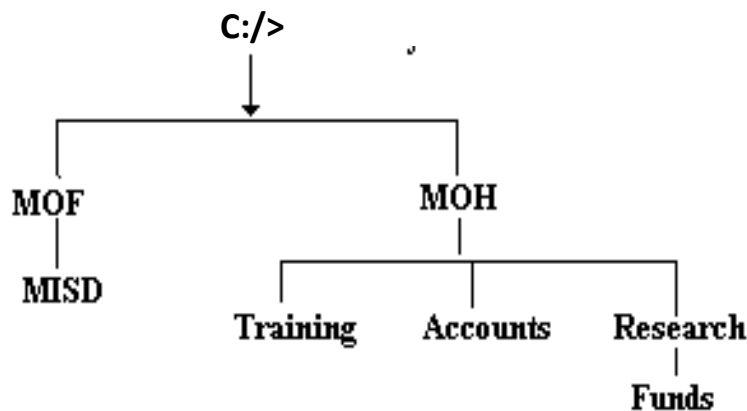
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(f) The diagram below represents the hierarchical arrangement of files in a computer. Use it to answer the questions that follow.



Write a full file pathname used to locate the file named **Funds**.

(2 marks)

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(g)(i) Identify the type of operating system shown by the figure below.

(1 mark)

```
Welcome to FreeDOS

CuteMouse v1.9.1 alpha 1 [FreeDOS]
Installed at PS/2 port
C:\>ver

FreeCom version 0.82 pl 3 XMS_Swap [Dec 10 2003 06:49:21]

C:\>dir
Volume in drive C is FREEDOS_C95
Volume Serial Number is 0E4F-19EB
Directory of C:\

FDOS                <DIR>    08-26-04  6:23p
AUTOEXEC.BAT       435     08-26-04  6:24p
BOOTSECT.BIN       512     08-26-04  6:23p
COMMAND.COM        93,963  08-26-04  6:24p
CONFIG.SYS         801     08-26-04  6:24p
FDOSBOOT.BIN       512     08-26-04  6:24p
KERNEL.SYS         45,815  04-17-04  9:19p
6 file(s)          142,038 bytes
1 dir(s)           1,064,517,632 bytes free

C:\>_
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(ii) State **two** disadvantages of using the above operating system

(2 marks)

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