

Name.....Index Number...../,

451/1

COMPUTER STUDIES

Paper 1

(Theory)

SAMPLE PAPER

2h hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1

(Theory)

2H hours

INSTRUCTIONS TO CANDIDATES

This paper has **TWO** sections; **A** and **B**.

Answer **ALL** the questions in section **A**.

Answer question **17 (compulsory)** and any other **THREE** questions from section **B**.

All answers should be written in the spaces provided on the question paper.

For Official Use Only

SECT.	QUES.	SCORE
A	1 - 16	
B	17	
	18	
	19	
	20	
	21	
Total Marks		

This paper consists of 12 printed pages

SECTION A

Answer all the questions in this section.

- 1 State any **three** differences between a micro-computer and a mainframe. (3 marks)

Distinguish between hardware and software. (2 marks)

- 3 In most computer systems, there are devices for input only, output only and some which can be used for both input and output.
Give one example of:

- (a) An input only device
- (b) An output only device
- (c) An input and output device

(3 marks)

- 4 List any **three** possible causes of loss of programs and data. (3 marks)

Table 1 shows three data files, Doc A, Doc B and Doc C and their respective contents.

Doc A	DocB	DocC
27	93	27
36	60	36
38	34	38
97	38	97
	102	93
	45	60
		34
		38
		102
		45

Table 1

State the dos command that can be used to create file Doc C from files Doc A and Doc B. (1 mark)

Explain why a program written by you cannot occupy the entire part of the RAM memory of your computer. (1 mark)

Define the term data processing cycle. (1 mark)

In the following section of text, you wish to replace the word 'the' with the word 'a'.
 "Enclosed is a bill for the car you bought from Mutheru's shop in Kiambu".
 You have a command that will search globally for a group of characters and replace them with another group.

- (a) What group of characters would need to be searched? (1 mark)
- (b) What group of characters would be needed for replacement? (1 mark)

Turn over

9 List the **three** basic program control structures.

(3 marks)

10 The following algorithms are intended to print out integers from 1 to 10 inclusive

Algorithm 1

Set count to 1
While the count is less than 10 do
Add 1 to the count
Output the value of the count
End while.

Algorithm 2

Set count to 1
Repeat
Output the value of the count
Add 1 to the count
Until the value of the count is 10

Algorithm 3

For count going from 1 to 10 DO
Add 1 to count
Output the value of the count
End for.

None of these algorithms works correctly. Rewrite the algorithms so that each one works correctly. (3 marks)

Sample Paper 1998

- 11** Table 2 below shows a screen from a spreadsheet program that has been used to plan a household budget. Cells in the spreadsheet are referred to by column letters and row numbers. Two examples of this are given below. The cell in column D and row two is referred to as cell D2. It contains the data item "Ksh. 46000". The cell in column A and row 5 is referred to as A5. It contains the data item "charcoal"

	A	B	c	D	E	F
1	Month	January	February	March	April	Total
2	Rent	46000	46000	460-00	460-00	184000
3	Transport	000	000	250-00	250-00	50000
4	Electricity	10000	10000	100-00	10000	100-00
5	Charcoal	15000	15000	15000	15000	60000
6	Food	38000	270-00	15000	30000	1100-00
7	Total	109000	98000	111000	126000	444000

- (a) Write down the data item that is stored in cell E6. (1 mark)
- (b) Which cell contains the data item 'Transport'? (1 mark)
- (c) Cell B7 contains a formula that is not displayed on the screen. The formula is sum B2 ... B6 or B2 + B3 + B4 + B5 + B6. What is the purpose of the formula? (1 mark)
- 12** (a) State any **two** components of a local area network. (2 marks)
- (b) List any **two** uses of computer facilities in schools. (2 marks)

Turn over

- 13 Explain **three** advantages of using a database instead of conventional computer file. (3 marks)
- 14 Two major cities are 100km apart. There is a proposal to link the two metropolitan area networks (MANS) together. Select with reasons the most suitable communication media in this application. (4 marks)
- 15 Explain **two** effects of computer technology on career opportunities in the work place. (2 marks)

Sample Paper 1998

Below is a list of 11 job titles in computer industry.

- 1 System analyst
- 2 Computer operator
- 3 Data processing manager
- 4 Database administrator
- 5 Computer engineer
- 6 Computer technician
- 7 Information resource manager
- 8 Network administrator
- 9 Computer trainer
- 10 Software engineer
- 11 Computer programmer

Using the titles above write down the correct job title of the person doing the following jobs:

- (a) Keying in data.....
- (b) Daily backup of information.....
- (c) Repairing computers.....
- (d) Training computer personnel.....

(2 marks)

Sample Paper 1998

Turn over

SECTION B

Answer question 17 and any other three questions.

With the aid of a flowchart, write a program in a highlevel language to read any amount of dollars and convert it into Kenya shillings. The output must be in Kenya shillings.

Assume the variables, dollars, exchange-rate and shillings as real numbers. (15 marks)

Sample Paper 1998

- 18** Microcomputers have had a considerable impact on office procedures in recent years. Discuss the procedures that have been affected and in each case give an explanation of how the software is applied. (15 marks)

Sample Paper 1998

- 19** (a) Describe methods of data collection recommended as input to computer systems in stock ordering in a supermarket. (9 marks)

- (b) A vendor proposed to a supermarket a voice recognition system of data capture. List the advantages and disadvantages of this device. (6 marks)

Sample Paper 1998

- 20 A school uses a computer to store information on its pupils. The examination results of the pupils are held in a coded form. Some of the fields used are as follows: Subject, level, mark obtained and date of examination. The codes used for each field are:

Subject 001 = Literature
 102 = Chemistry
 304 = Geography
 Level 02 = KCPE
 03 = KCSE
 04 = ORAL

The "mark" is a 3 digit number in the range of 000 to 100. Date of examination is written in the following way:

1087 = October 1987
 0686 = June 1986

- (a) Interpret the following codes

(i) 102020560585

(ii) 001040831187

(4 marks)

- (b) Encode a mark of 65 in a KCSE Chemistry examination taken in November, 1984.

(1 mark)

- (c) It is possible to make errors when entering information. State the conditions required to validate in the:

(i) date field

(ii) mark field.

(4 marks)

- (d) State with reasons an example of three extra fields that might be useful.

(6 marks)

Turn over

21 (a) State **five** reasons why we need computer networking. (5 marks)

.

(b) With the aid of appropriate diagrams describe the following topologies as used in local area network:

(i) Bus network

(ii) Star network

(10 marks)

Sample Paper 1998

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COMPUTER STUDIES
PAPER 1
(Theory)
Oct/ Nov 1999
2 $\frac{1}{2}$ hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education
COMPUTER STUDIES
Paper 1
(Theory)
2 $\frac{1}{2}$ hours

INSTRUCTIONS TO CANDIDATES

This paper has **TWO** sections; **A** and **B**.
Answer **ALL** the questions in section **A**.
Answer question **16 (compulsory)** and any other **THREE** questions from section **B**.
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For Official Use Only

SECT.	QUESTION	SCORE
A	1 - 15	
B	16	
	17	
	18	
	19	
	20	
Total Marks		

This paper consists of 9 printed pages
Candidates should check the question paper to ensure that all the printed pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

Answer all questions in this section.

- 1 State any **three** functions of a computer. (3 marks)
- 2 Give **two** types of storage devices used in a computer giving an example of each. (4 marks)
- 3 Give any **three** precautionary measures considered to ensure the safety of computers in a computer laboratory. (3 marks)
- 4 Define
- (a) File.....
- (b) Record.....
- (c) Field..... i..... i.....
- (3 marks)
- 5 List **two** features of a word processor. (2 marks)
- 6 Differentiate between the **hardware** and **software** components of a computer giving an example of each. (4 marks)

7 What is program documentation? Give **two** examples of program documentations. (3 marks)

8 Give **two** differences between high-level and low-level languages. (2 marks)

9 Worksheet cells are referenced using the column letter and row number e.g. D2 is cell in column D and row 2.
Use the sample worksheet provided to answer the questions below.

	A	B	C	D	E	F
1	Month	Jan.	Feb.	Mar.	April.	Total
2	Fees	460	460	460	460	
3	Food	300	350	305	270	
4	Electricity	100	100	100	100	
5	Fuel	150	150	150	150	
6	Transport	380	270	150	300	
7	Total					

(a) Write down the **data type** that is stored in cell C5. (1 mark)

(b) What cell contains the data item representing transport for the month of February? (1 mark)

(c) Write down the formula that may be used to compute the total in cell F6. (1 mark)

SECTION B (60 marks)

Answer *question 16* and any other *three* questions..

- 16** The roots of the equation $ax^2 + bx + c = 0$ are given by the formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

- (a) Draw a flow-chart to compute the roots of the equation. (10 marks)

KCSE 1999

- (b) Using the flow-chart in (a), write a program that will compute the roots and
If $b^2 - 4ac$ is negative, the program should display the message "NEGATIVE".
(5 marks)

A multinational organisation has offered to donate computers to your school. The Board of Governors has requested you to advise on the operating system to be used by providing answers to the following questions.

- (a) What is an operating system? (1 mark)
- (b) State and briefly explain any **two** types of operating systems. (6 marks)

(c) Briefly explain any **four** functions of an operating system. (8 marks)

(a) (i) State **one** area where computers are used.

(ii) Give any **two** advantages of using computers in this area. (6 marks)

(b) Explain the effect of computer technology in the following areas:

(i) Job opportunities

(ii) Job skills

(iii) Communication.

(9 marks)

Turn over

- 19** A Computer Vendor has recommended the use of a computer database to your school for students information.
- (a) Explain to the Board of Governors what a database is and its functions. (5 marks)
- (b) Give **two** examples of database systems. (2 marks)
- (c) Briefly explain any **two** advantages and **two** disadvantages of using a database. (8 marks)
- 20** (a) What is a computer network topology? (2 marks)
- b) Using appropriate diagrams, show any **three** computer network topologies. (9 marks)

- (c) Briefly explain **two** reasons why organisations need to network their computers.
(4 marks)

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451/1
COMPUTER STUDIES
PAPER 1
(Theory)
Oct/ Nov. 2000
2½ hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education
COMPUTER STUDIES
Paper 1
(Theory)
2½ hours

INSTRUCTIONS TO CANDIDATES

This paper has **TWO** sections; **A** and **B**.
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SECT.	QUESTION	SCORE
A	1 - 15	
B	16	
	17	
	18	
	19	
	20	
Total Marks		

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SECTION A (40 marks)

Answer the *all* questions in this section.

- 1 Write the following abbreviations in full. (3 marks)
- (i) BCD
 - (ii) ASCII
 - (iii) EBCDIC
- 2 Define the term **array** as used in computer programming. (2 marks)
- 3 Suggest how computers may in future be made more user friendly for persons that are; (2 marks)
- (a) blind.....^T
 - (b) without hands.....
- 4 State **three** advantages of computer networking. (3 marks)
- 5 Name **six** steps in program development cycle in their logical sequence. (3 marks)

State **two** methods of minimizing dust in a computer laboratory. (2 marks)

Differentiate between **primary memory** and **secondary memory**. (2 marks)

List the steps that you would use to correct wrongly spelt words in a document using the spell checking feature. (3 marks)

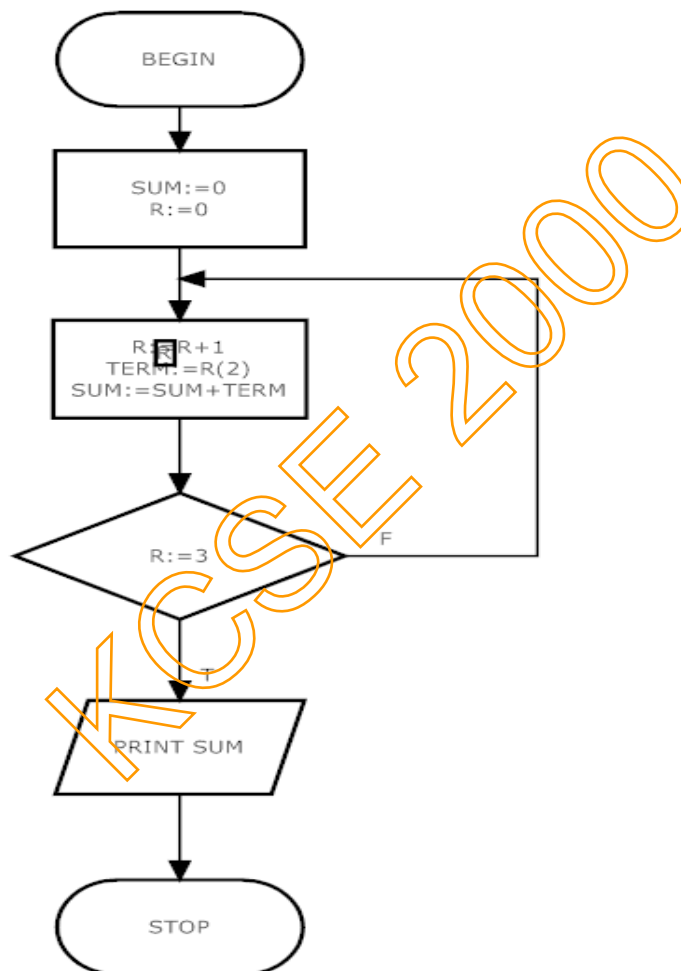
9 Differentiate between single-user and multi-user operating systems giving an example of each. (3 marks)

10 State what is meant by each of the following and give an example of where each is used.

(a) Magnetic Ink Character Recognition (MICR) (2 marks)

(b) Optical mark reader (OMR)

- 11 In the following flowchart, what will be the value of the sum when printed?
Show how you arrive at your answer.



- 12 Distinguish between system software and application software. (2 marks)
- 13 Explain any **three** of the terms: creating, editing, printing and saving as used in wordprocessing. (3 marks)
- 14 List **three** file organisation methods in a computer. (3 marks)
- 15 What is the use of the search and replace feature in a wordprocessor? (2 marks)

SECTION B (60 marks)

Answer *Question 16* and any *three* other questions.

- 16** A program is required for reading in a student's name and the scores obtained in two subjects. The output of the program will consist of the student's name, the two scores, the average of the two scores and a comment. The comment is based on the average as follows:

Average	Comment
> 70	Good
≤ 70	Poor

Write a program to solve the problem using a high level language.

(15 marks)

KCSE 2000

17 (a) What is meant by **data communication** in a computer network? (2 marks)

(b) State what is meant by each of the following transmission media and give **one** advantage and **one** disadvantage for each.

(i) Twisted pair cables. (3 marks)

(ii) Coaxial cables. (3 marks)

(iii) Optic fibre cables. - (3 marks)

KCSE 2000

- (c) List **four** network elements in a local area network. (4 marks)

18 Andrew, Jane, David and Zablon had tea, sausages and bananas for breakfast. They took one sausage, two sausages, three sausages and one sausage respectively. In addition, they each took a cup of tea and two bananas. Tea, sausages and bananas cost Ksh. 10, 15, and 5 respectively.

By naming columns A, B, C,..... and rows 1, 2, 3.....:

- (a) construct a worksheet showing the above information. (7 marks)

KCSE 2000

- (b) state the expression you would use to obtain:

- (i) total expenditure by David. (4 marks)

- (ii) total number of sausages taken. (2 marks)
- (iii) the cost of the cheapest item. (2 marks)
- 19** (a) What are computer viruses? (2 marks)
- (b) (i) State **two** ways through which computer viruses may be controlled. (2 marks)
- (ii) Explain how each of the two ways stated in b(i) above assist in controlling computer viruses. (2 marks)
- (c) Define each of the following computer terminologies: (3 marks)
- (i) byte
- (ii) bit
- (iii) word

(d) Convert the hexadecimal number **FC1** to its binary equivalent. (6 marks)

20 (a) A firm intends to purchase new software. List **three** items that should accompany the software. (3 marks)

(b) State and explain **three** ways that computer technology could make office work more efficient. (6 marks)

(c) Explain the meaning of each of the following computer crimes: (6 marks)

(i) Hacking

(ii) Fraud

(iii) Piracy

Name

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COMPUTER STUDIES

Paper 1

(THEORY)

Oct./Nov. 2001

2 4 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1

(THEORY)

2 j hours

INSTRUCTIONS TO CANDIDATES

This paper consists of **TWO** sections; A and B.

Answer **ALL** the questions in section A.

Answer question **15** and any other **THREE** questions from section B.

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For Official Use Only

Section	Question	Score
A	1 - 14	
B	15	
	16	
	17	
	18	
	19	
TOTAL MARKS		

This paper consists of 11 printed pages

Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

Answer *all* the questions in this section.

Compare the two types of diskettes used in microcomputers in terms of physical size and densities. (2 marks)

Why is it necessary to have a UPS in a computer laboratory? (2 marks)

(a) Explain what is meant by batch processing (1 mark)

(b) Give **one** advantage and **one** disadvantage of batch processing. (2 marks)

List any **four** high level programming languages. (2 marks)

- 5 A 3 by 4 matrix array **M** is to be added to another 3 by 4 matrix array **N** so as to give a third 3 by 4 matrix array **P**. Using a high level programming language, write a program segment that assigns the sum of **M** and **N** to **P**. (4 marks)

- 6 The first column in the table below contains the formulae as stored into the cell F10 of a spreadsheet. Enter the formulae as they would appear when copied to cell M20 of the same spreadsheet.

Formula in F10	Formula in M20
= D10*E10	
= A\$25	
= \$\$D\$13	

(3 marks)

- 7 Give **three** advantages of separating data from the applications that use the data in database design. (3 marks)

KCSE 2001

Explain the impact of information technology on organisations in each of the following areas:

(a) competition (2 marks)

(b) pace of growth. (2 marks)

(a) List any **four** tasks that an electronic spreadsheet should be able to perform other than calculations. (2 marks)

(b) Explain what is meant by automatic recalculation as used in a spreadsheet. (1 mark)

10 Describe the functions of the following computer hardware components:

(a) mouse (1 -j marks)

(b) scanner. (14- marks)

- 11 (a) State **two** differences between Disk Operating System (DOS) and WINDOWS operating system. (2 marks)
- (b) (i) Define the term application software. (1)mark
- (ii) Give **one** example of an application software. (1 mark)
- 12 (a) Give **one** difference between internal and external commands in Disk Operating System. (2 marks)
- (b) Name **two** DOS commands that may be used for checking disk errors. (1 mark)
- 13 Explain how a paragraph can be moved from one place to another in wordprocessing. (2 marks)
- 14 Define the term structured programming. (2 marks)

SECTION B (60 marks)

Answer question 15 and any other **three** questions from this section.

(a) What is meant by each of the following terms:

(i) pseudocode

(14 marks)

(ii) flowchart.

(14 marks)

(b) A program is required to list the first 1000 numbers in the series: 2, 4, 6, 8, 10, ...
Draw a **flowchart** and write a **program** that can be used to carry out this task.

(12 marks)

KCSE 2001

16 The following car details are to be entered in a database: **Make, date-of-manufacture, colour** and **cost**.

(a) Prepare a suitable database structure showing field names and their field types. (5 marks)

(b) Explain how you index the data such that cars of the same make and colour are together. (2 marks)

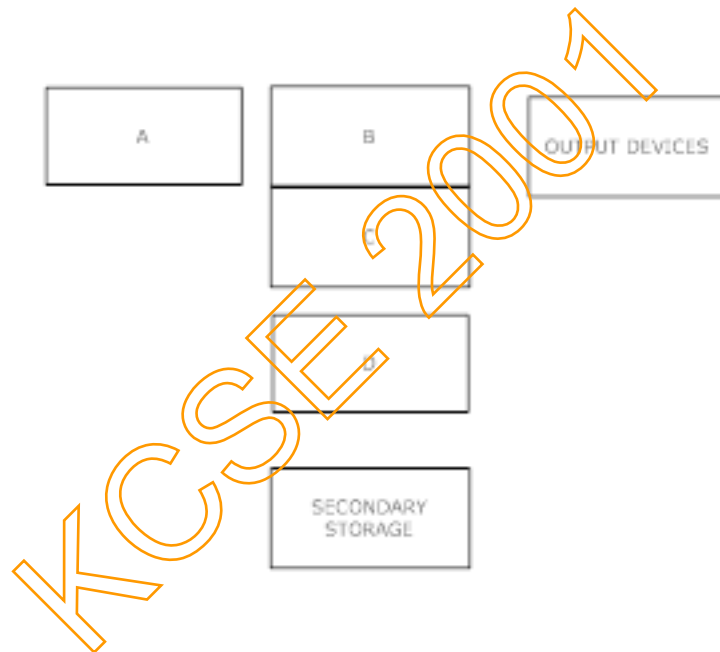
(c) Write a statement that can be used to select cars of colour green. (2 marks)

(d) Give an instruction that would:

(i) select cars whose cost is between 500,000/= and 1,000,000/- (3 marks)

(ii) determine the average cost of all cars. (3 marks)

17 (a) The diagram below represents the essential features of a computer system. Study the diagram and answer the questions that follow:



(0) Name the components: (4 marks)

A

B

C

D

- (ii) On the diagram above, indicate the direction of data flow-using arrows. (3 marks)
- (b) Name the **three** types of buses in a computer system. (3 marks)
- (c) Explain how the CPU registers may be used to carry out a basic calculation such as $2 + 7 = 9$. (4 marks)
- (d) Name **two** computer output devices. (1 mark)
- 18** (a) State **three** ways in which computer technology may affect employment patterns in organisations. (3 marks)
- (b) (i) State and explain **three** reasons why the employment patterns are affected. (6 marks)

(ii) Suggest **three** strategies that can be employed to manage resistance to change. (3 marks)

(c) Give **three** advantages of computerisation in an organisation. (3 marks)

19 (a) In a computer based information system, state the purpose of the following files and give **one** example where such a file may be required in a school. (8 marks)

(i) Report file.

(ii) Back-up file.

(iii) Reference file.

(iv) Sort file.

- (b) State **three** precautions that should be taken to ensure that diskettes are well stored.
(3 marks)
- (c) Distinguish between "serial" and "indexed sequential" file organisation methods.
(2 marks)
- (d) Distinguish between binary and octal number systems and give an example of each.
(2 marks)

KCSE 2001

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COMPUTER STUDIES

Paper 1

(THEORY)

Oct./Nov. 2002

2 y hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1

(THEORY)

2 4 hours

INSTRUCTIONS TO CANDIDATES

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Answer **ALL** the questions in section **A**.

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

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A	1 - 15	
B	16	
	17	
	18	
	19	
	20	
Total marks		

This paper consists of 10 printed pages

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SECTION A (40 marks)

Answer *all* the questions in this section.

- 1 Describe the purpose of each of the following computer functional units: (2 marks)
- (a) control
- (b) storage.
- 2 Explain how each of the following would affect the suitability of a room for use as a computer room: (2 marks)
- (a) burglar proofed door
- (b) availability of taps and sinks in the room.
- 3 State **three** data representation codes used in computers. (3 marks)
- 4 State **two** types of documentation in program development and give the purpose of each. (4 marks)

- 5 Suppose a **5** element array **A** contains the values **9**, 12, 17, 7 and 20. Find the value in **A** after executing the loop below.
Repeat for k = 1 to 4
Set **A**[k + 1] := **A** [k]
[End of loop] (3 marks)
- 6 State any **three** activities that occur in a program compilation process. (3 marks)
- 7 The formula = K20 + P\$ 18 was typed in cell L21 and then copied to cell M24 of a spreadsheet. Write the formula as it appears in cell M24 (2 marks)
- 8 State **two** ways in which a computer may be used in efficient running of a hospital. (2 marks)
- 9 List **three** disadvantages of using traditional file management method. (3 marks)
- 10 Give **one** disadvantage of a single processor multi-user system. (1 mark)

List **three** differences between a micro-computer and a super-computer. (3 marks)

State and explain **two** reasons why word processing is one of the most common applications of many computer users. (2 marks)

Write-1 in twos complement notation in byte form. (4 marks)

Explain the following input/output terms as used in computer systems. Give an example for each. (4 marks)

(a) Read

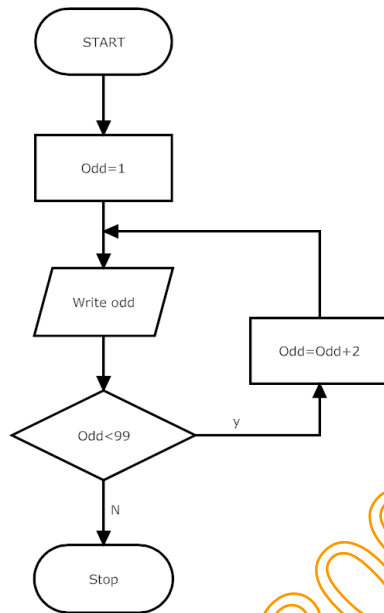
(b) Write

State **two** disadvantages of networking. (2 marks)

SECTION B (60 marks)

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

- 16** The following flowchart can be used to list the odd numbers between 0 and 100.



- (a) Write a program segment for the flowchart using a high level language. (7 marks)

- (b) What would be the output from the flowchart if the statement in the decision box is changed to: (3 marks)
- (i) $\text{odd} = 100$
 - (ii) $\text{odd} < 100$
 - (iii) $\text{odd} > 100$.
- (c) Modify the flowchart so that it prints only the sum of the odd numbers between 0 and 100. (5 marks)

KCSE 2002

17 (a) List **five** precautions that can be taken to protect data stored in diskettes. (5 marks)

-(b) State and explain **two** precautions that can be taken to help recover data lost through accidental erasure. (4 marks)

(c) Describe each of the following data processing methods: (6 marks)

(i) batch processing

(ii) distributed processing

(iii) multiprogramming.

- 18** (a) (i) What is a computer keyboard? (1 mark)
- (ii) List **four** types of keys found on a computer keyboard. Give an example of each. (4 marks)
- (b) Give **four** differences between present days' computers and the older generation of computers. (4 marks)
- (c) (i) State **three** advantages and **one** disadvantage of using a laser printer. (4 marks)
- (ii) Distinguish between a line printer and a page printer. (2 marks)
- 19** (a) Identify **three** Public Universities and **three** National Polytechnics in Kenya where further computer training is offered. In each case, state the highest level of qualification that can be acquired in computer training. (6 marks)

(b) Distinguish between "Job replacement" and "Job displacement" in reference to computerisation. (2 marks)

(c) Give **four** reasons why a firm may decide to computerise its operations. (4 marks)

(d) An individual has a right to demand guarantee to privacy of personal information stored on a computer.
Give **three** such types of information. (3 marks)

20 (a) Give **three** comparisons of the traditional method of typing a document on a typewriter against using a word processor. (6 marks)

(b) (i) Define the term spreadsheet. (1 mark)

(ii) Give **two** examples of spreadsheet packages available in the market today. (2 marks)

(c) Explain the following terms as used in a spreadsheet:

(0) what if.....analysis (2 marks)

(ii) cell (1 mark)

(iii) formula (1 mark)

(iv) pie-chart. (2 marks)

KCSE 2002

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451/1
COMPUTER STUDIES
Paper 1
(THEORY)
Oct/Nov. 2003
2-j hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1
(THEORY)

24 hours

INSTRUCTIONS TO CANDIDATES

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	17	
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TOTAL SCORE		

This paper consists of **11** printed pages

Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

Answer all the questions in this section,

1 Computer systems are built from three types of physical components: processors, memories and I/O devices.

(a) State **two** tasks of a processor. (2 marks)

(b) State the functions of I/O devices. (1 mark)

2 Threats to the safety of computer systems take many forms such as:

White-collar crime, natural disasters, vandalism and carelessness.

Give **one** way as to how each of these forms of threats can be controlled. (2 marks)

3 (a) Explain the term nibbles as used in data representation in computers. (1 mark)

(b) Perform the following binary arithmetic giving the answers in decimal notation. (3 marks)

(i) $11100111 + 1101001\ 011$

(ii) $1001011-011-111-111$

4 (a) Distinguish between machine and assembly language. (2 marks)

(b) State the type of translator necessary for a program written in:

(i) high level language

(ii) assembly language.

(2 marks)

5 Briefly explain the purpose of the following types of program documentation:

(a) user manual

(b) reference guide

(c) quick reference guide.

(3 marks)

6 State any **two** features of a user friendly program. (2 marks)

7 (a) Distinguish between labels and formulae with respect to spreadsheets. (2 marks)

4

(b) Consider the entries made in die cells below.

Cell	B2	B3	C10	C11	C13
Entry	200	100	B2	B3	= C10 + C11

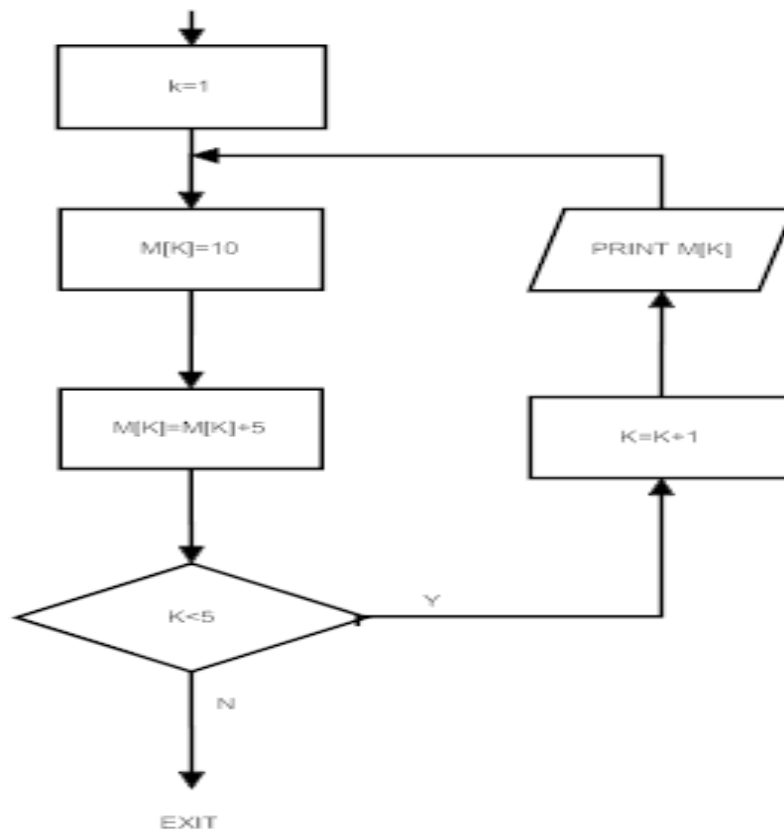
State the value displayed in cell CI3.

(2 marks)

8 List **three** differences between Wide Area Networks (WAN) and Local Area Networks (LAN). (3 marks)

Study the flowchart segment below and state the last value printed from the flowchart.

(2 marks)



10 (a) What is an expert system?

(1 mark)

(b) State any **two** components of an expert system. (2 marks)

Give **two** reasons why optical disks are better storage media compared to floppy diskettes. (2 marks)

What are the DOS commands used for the following? (2 marks)

- (a) Changing directories.
- (b) Viewing directories.
- (c) Renaming directories.
- (d) Deleting a directory.

Distinguish between copying and moving text. (2 marks)

(a) Name two methods of paper orientation. (1 mark)

(b) Name two keys used to delete text in a document. (1 mark)

Name two features of a Database package. (2 marks)

Turn over

- (b) List the outputs of the flowchart above. (5 marks)
- (c) Modify the flowchart so that it adds up all its outputs and displays the sum obtained. (3 marks)

A computer specification has the following details:

Pentium III
144 MB floppy disk drive
20 GB hard disk
Full multimedia
17" SVGA monitor
Pre - installed operating system
Pre - installed office suite.

- (a) What is meant by: (6 marks)
- (i) 1.44 MB floppy disk drive?

 - (ii) 20 GB hard disk?

 - (iii) 17" SVGA monitor?
- (b) Which operating system might be pre-installed in this computer and why? (2 marks)
- (c) List three multimedia components. (3 marks)
- (d) (i) What is meant by computer aided manufacture? (2 marks)
- (ii) Give two examples of computer aided design software. (2 marks)

of network software.

- (b) List any **three** items that may be referred to as data terminal equipment network.
- (c) Briefly explain the following terms as used in networking:
- (i) remote communication

 - (ii) distributed processing.

State **three** advantages and **two** disadvantages of mesh network topology. (5 marks)

- 19** **00** A company has decided to computerise their operations. They have decided to purchase packages instead of developing their own programs. Give three advantages and two disadvantages of this approach. (5 marks)
- (b) (i) Explain why a value such as 611233444555 may be displayed as ##### when typed in a cell of a spreadsheet. (2 marks)
- (ii) How can the problem in (b)(i) above be corrected? (2 marks)
- (c) With reasons, briefly describe the most appropriate type of printer or output device for the output of: (6 marks)
- (i) customer invoices on multi-part stationery
- (ii) letters to customers
- (iii) detailed engineering designs.
- 20** **(a)** Distinguish between the following pairs of terms: (6 marks)
- (i) data verification and data validation
- (ii) data encryption and passwords
- (iii). dry run and walkthrough.

(b) Draw a labelled diagram to illustrate the internal structure of a diskette. (4 marks)

(c) Give **two** differences between post office mail and electronic mail (E - mail).
(2 marks)

(d) Speed and accuracy are some of the advantages of using computers in banking.
State **three** other advantages of use of computers in banking. (3 marks)

Name

Index Number

451/1

COMPUTER STUDIES

Paper 1

(THEORY)

Oct./Nov. 2004

2 j hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1

(THEORY)

2 hours

INSTRUCTIONS TO CANDIDATES

This paper consists of **TWO** sections; A and **B**.

Answer **ALL** the questions in section A.

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

All answers should be written in the spaces provided on the question paper.

For Official Use Only

Section	Question	Score
A	1-15	
	16	
B	17	
	18	
	19	
	20	
TOTAL SCORE		

This paper consists of 12 printed pages

Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

Answer *all* the questions in this section.

How is a point of sale terminal used in a business organisation? (2 marks)

Distinguish between a compiler and an interpreter. (2 marks)

Explain why computers use binary numbers in data representation. (2 marks)

KCSE 2004

4 What is meant **by** the term **dry running** as used in program development? (2 marks)

A computer teacher has put a rule that diskettes should not be used in the Computer Laboratory.

(a) Give a reason for the rule. (1 mark)

(b) State **two** other alternatives that can be used to achieve the same objective. (2 marks)

6 List **three** differences between a laser printer and a dot matrix printer. (3 marks)

7 List **four** stages involved in the data processing cycle. (2 marks)

8 (a) What is a utility software? (1 mark)

(b) Give **four** examples of utility software. (2 marks)

9 Distinguish between an intelligent terminal and a dumb terminal. (2 marks)

10 List **two** duties of each of the following personnel:

(a) Database administrator. (2 marks)

(b) Data processing manager. (2 marks)

11. Differentiate between source program and object program. (2 marks)

12. (a) In DOS, what are the following commands used for?
- (i) RD (1 mark)
- (ii) DEL *.* (1 mark)
- (b) What happens when the following commands are typed in the DOS environment?
- (i) CD— (1 mark)
- (ii) DIR (1 mark)

13 A student presented a budget in the form of a worksheet as follows.

	A	B	C
1	Item	Amount	
2	Fare	200	
3	Stationery	50	
4	Bread	300	
5	Miscellaneous	150	
6	Total		

The student intends to have spent half the amount by mid-term.

- (a) Given that the value 0.5 is typed in cell B9, write the shortest formula that would be typed in cell C2 and then copied down the column to obtain half the values in column B. (1 mark)
- (b) Write two different formulae that can be typed to obtain the total in cell B6 and then copied to cell C6. (2 marks)

14 State **three** operations that can be performed on relational database files. (3 marks)

15 List **three** parts that constitute an array definition statement. (3 marks)

KCSE 2004

SECTION B (60 marks)

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

- 16** Bidii wholesalers has two categories of customers for order processing. Category 'A' obtains 10% discount on all orders upto Ksh. 10,000 otherwise the discount is 20% on the entire order. Category 'B' obtains 30% discount on all orders if the debt repayment is 'good' otherwise the discount is 15%. Draw a flowchart for the order processing. (15 marks)

KCSE 2004

- 17** (a) List **three** application areas of artificial intelligence. (3 marks)

With the improvement in price and performance of computers and communication equipment, it will be possible for people in various business organisations to work from home. Such working using a PC as a remote terminal is often described as teleworking. State **three** advantages and **three** disadvantages of working from home. (12 marks)

Advantages

Disadvantages

Explain **three** ways by which computer users can protect their eyes from harmful emissions from the computer screen. (6 marks)

- (b) List **three** factors to be considered when deciding on the choice of an electronic data processing method. (3 marks)

- (c) Explain time sharing data processing mode giving **two** advantages and **two** disadvantages of its application. (6 marks)

KCSE 2004

- 19** A school has bought a Computer System. The hardware items supplied include: a 800MHZ processor, 640 MB of RAM, a sound card, speakers, a monitor, a keyboard, a 12GB hard disk, a floppy disk drive, a CD - Read/Write drive, a mouse, a modem, an inkjet printer and a joystick. The software supplied include: an operating system, a BASIC interpreter and the following packages: spreadsheets, graphics, word processor, art, database and games.

- (a) List **three** input devices from the given specifications. (3 marks)

Explain the meaning of the following:

(i) 800MHZ (2 marks)

(ii) 640 MB (2 marks)

(iii) 12 GB (2 marks)

Some of the students in the school use the computer to do homework.

Name the packages used to:

(i) do calculations and draw graphs (1 mark)

(ii) write an essay (1 mark)

(iii) make a poster. (1 mark)

Students enjoy playing noisy computer games.

(i) Which two hardware items are needed to produce sound? (2 marks)

- (ii) Which input device is only used for playing games? (1 mark)

20 A school organizes its work in directories. The directory WP contains the files CATS, EXAMS and ASSIGNMENTS. The directory SP contains the spreadsheet files. The directory DB contains the database files. The directory PROG is contained in the others directory. The directory WP also contains the PERSONAL directory. Given that the directory student contains directories SP, DB, WP and OTHERS.

- (a) Draw the directory tree structure with C as the root. (7 marks)

KCSE 2004

- (b) Write the path at which the contents of the subdirectory DB can be erased or displayed. (2 marks)

- (c) Write the path for the directory PROG. (2 marks)

(d) Give **two** reasons for storing files in directories and subdirectories. (2 marks)

(e) Give **two** disadvantages of using command driven interfaces as compared to menu driven interfaces. (2 marks)

KCSE 2004

Name

Index Number

451/1

COMPUTER STUDIES

Paper 1

(THEORY)

Oct./Nov. 2005

2 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1

(THEORY)

24 hours

INSTRUCTIONS TO CANDIDATES

This paper consists of **TWO** sections; **A** and **B**.

Answer **ALL** the questions in section **A**.

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

All answers should be written in the spaces provided on the question paper.

For Official Use Only

Section	Question	Score
A	1 - 15	
B	16	
	17	
	18	
	19	
	20	
TOTAL SCORE		

This paper consists of 12 printed pages

Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

Answer *all* the questions in this section.

What is disk formatting? (1 mark)

Indicate whether the following devices are used for input or output. (2 marks)

(i) Plotter

(ii) Light pen

(iii) Mouse

(iv) Visual display unit

Explain why the following controls should be implemented for computer based systems. (2 marks)

(i) Back-ups.

(ii) Passwords.

For each of the following, give one reason why they are not allowed in a computer laboratory. (2 marks)

(i) Smoking.

(ii) Eating foods.

- 3 Distinguish between Real, Integer and Character data types as used in programming. (3 marks)
- 4 The cells K3 to K10 of a worksheet contain remarks on students performance such.as very good, good, fair and fail depending on the average mark. Write a formula that can be used to count all students who have the remark "very good". (3 marks)
- 5 (a) State the purpose of registers in a computer system. (1 mark)
- (b) Name two multiprogramming operating systems. (2 marks)
- 6 (a) A serial file comprises of records placed in positions 1 to 10. State the position of the end of file marker. (1 mark)

State the purpose of each of the following:

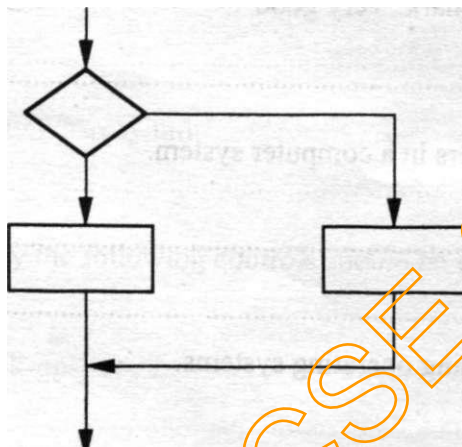
(2 marks)

(i) file server software

(ii) communication software.

Name the control structure depicted by the flowchart below.

(1 mark)



Explain the following terms as used in program implementation.

(2 marks)

(i) Parallel running.

- (ii) Direct change over.

Consider the linear arrays:

- (i) AAA (5:50)
(ii) BBB(-5:10)
(iii) CCC(18)

Find the number of elements in each array. (3 marks)

Define the term artificial intelligence. (2 marks)

10 Name two types of relationships that can be applied in database design. (2 marks)

11 Explain the following terms as used in wordprocessing: (3 marks)

- (a) indenting

(b) alignment

(c) word wrap

Outline two ways in which computers can be used in hotels. (2 marks)

(a) Explain **Binary Coded Decimal** code of data representation. (1 mark)

(b) Write the number 451_{10} in BCD notation. (1 mark)

Arrange the following data units in ascending order of size.

BYTE, FILE, BIT, NIBBLE. (2 marks)

State two health issues that may result from prolonged use of computers. (2 marks)

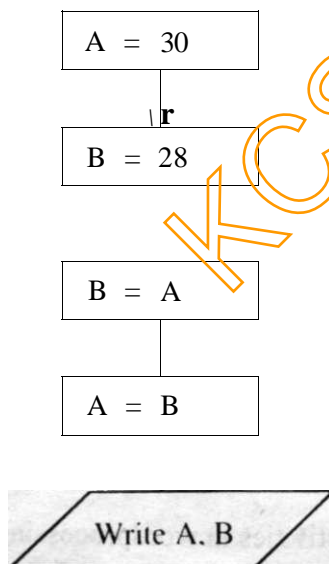
SECTION B (60 marks)

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

State the stage of program development in which: (2 marks)

- (i) a flowchart would be drawn
- (ii) the programmer would check whether the program does as required
- (iii) the user guide would be written
- (iv) the requirements specifications would be written.

State the output of the following flowchart segment.



(2 marks)

Turn over

- (i) Draw a flowchart to compute the combined resistance (R) of two resistors R_1 and R_2 in parallel using the formula;

(5 T marks)

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$

- (ii) Write a program using Pascal or C languages for the flowchart in c(i) above.
(5 7 marks)

KCSE 2005

List three paragraph formatting activities in wordprocessing.

(3 marks)

(b) Differentiate between bolding and highlighting text. (2 marks)

(c) The following information shows the income and expenditure for "Bebayote" matatu for five days. The income from Monday to Friday was Kshs. 4,000, 9,000, 10,000, 15,000 and 12,000 respectively while the expenditure for the same period was Kshs. 2,000, 3,000, 7,000, 5,000 and 6,000 respectively.

Draw a spreadsheet that would contain the information. Indicate the rows as 1,2,3..... and the columns as A, B, C..... (4 marks)

(ii) State the expression that would be used to obtain:

I Monday's profit (2 marks)

II total income (2 marks)

III highest expenditure. (2 marks)

18 (a) Subtract 0111_2 from 1001_2 (0 mark)

Using two's complement, subtract 7 from 4 and give the answer in decimal notation.
(4 marks)

Convert:

(i) 91B₁₆ to octal (3 marks)

(ii) 3768 to hexadecimal (3 marks)

(iii) 9.625₁₀ to binary. (4 marks)

KCSE 2005

Explain what the following DOS commands will do when executed.

(i) A:\>copy *.* B: (2 marks)

(ii) C:\>ERASE *.DOC (2 marks)

(iii) B:\>DIR P*.BAT (2 marks)

(iv) A:\>MD EXAMS (2 marks)

(b) (i) With the aid of a diagram, explain hierarchial (tree) network topology. (3 marks)

(ii) List **two** advantages and **two** disadvantages of hierarchial network topology. (4 marks)

Advantages

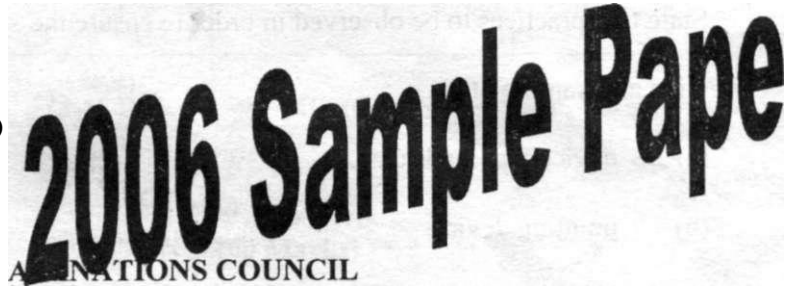
Disadvantages

- 20** (a) Name and explain the function of the keyboard keys represented by the following symbols.
- (i) (2 marks)
- (ii) (2 marks)
- (iii) (2 marks)
- (b) Simulation is one of the application areas of computers,
- (i) What is meant by the term simulation? (1 mark)
- (ii) Name **two** application areas of simulation. (2 marks)
- (iii) State **three** advantages of computer based simulation. (3 marks)
- (c) Explain **three** ways in which computers have impacted on education. (3 marks)

Name

Index Number

**COMPUTER STUDIES
PAPER 1 (SAMPLE PAPER)
(THEORY)
2006
272 hours**



**THE KENYA NATIONAL EX
Kenya Certificate of Secondary Education
COMPUTER STUDIES
Paper 1 (SAMPLE PAPER)
(THEORY)
2Vi hours**

*This paper consists of two sections; A and B.
Answer all the questions in section A.
Answer question 16 and any other three questions from section B.*

For Official Use Only

Section	Question	Score
A	1-15	
	16	
B	17	
	18	
	19	
	20	
Total Marks		

This paper consists of 5 printed pages

Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

SECTION A (40 MARKS)

Answer **all** the questions in this section.

- 1 State two practices to be observed in order to ensure the safety of the computer user. (2 marks)
- 2 Give an example of a:
 - (a) device that reads data. (3 Marks)
 - (b) pointing device
 - (c) voice input device.
- 3 How does an operating system organise information? (1 Mark)
- 4 List three factors to be considered when purchasing a micro-computer. (3 Marks)
- 5 Distinguish between data and information, (2 Marks)
- 6 (a) State the type of data communication media that could be used in an electronically noisy environment. (1 Mark)
(b) Explain your answer in (a) above. (1 Mark)
- 7 Give two reasons why it is necessary to have a program design. (2 Marks)
- 8 Distinguish between portrait and landscape orientations. (2 Marks)
- 9 (a) State one use of hexadecimal notation in a computer. (1 Mark)
(b) Convert **161** to hexadecimal. (2 Marks)
10. Explain two features of a DVD that enables it to store more information than a CD-R (4 Marks)
Explain the meaning of the following terms:
 - (a) cracking (2 Marks)
 - (b) fire walls. (2 Marks)
12. Name **three** responsibilities that are carried out by a web administrator, (3 Marks)
13. (a) What is meant by the term e-learning? (1 Mark)
(b) A school intends to set-up an e-learning system. List three problems that are likely to be encountered. (3 Marks)
14. Name three circumstances in which it is better to use a questionnaire than an interview for gathering information. (3 Marks)

15. A worksheet **contains** the data **shown** below:

Cell	A1	A2	A3	C1	C2	C3	G1
Entry	5	7	10	10	15	15	=SUMIF(C1: C3, "<> 10", A1:A3)

State the value displayed in G1.

(2 Marks)

SECTION B (60 Marks)

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

16. (a) The following Pseudocode processes data in an array A:

```

n = 3
for i = 2 to n do
    X = A[i]
    A[0]=X
    j = i-1
    While A[j ]>X do
        A[j + 1]= A[j ]
        J = J - 1
    End while
    A[j + 1] = X
Print A [ 1 ], A[ 2 ], A[ 3 ]
End for

```

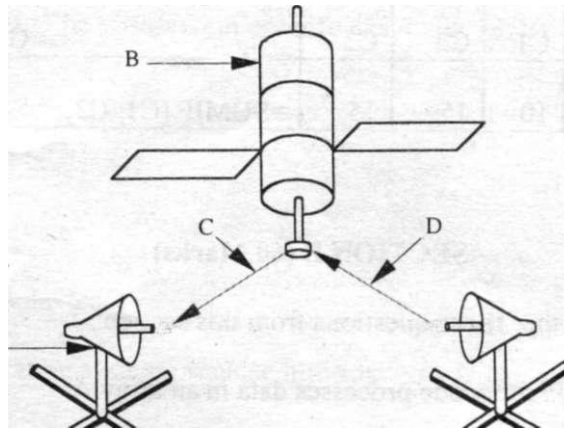
(i) Draw a flowchart for the above pseudocode. (7 Marks)

(ii) Initially $A[1] = 4$, $A[2] = 3$, $A[3] = 9$.
What is the output of the above pseudocode? (6 Marks)

(iii) What is the purpose of the above pseudocode? (1 Mark)

(b) Give an advantage of using an object oriented programming language. (1 Mark)

17. (a) Study the diagram below and answer the questions that follow:



- (i) Name the communication media depicted in the above diagram. (1 Mark)
- (ii) Name the parts labelled A, B, C and D (4 Marks)
- (iii) List three advantages of the above communication media. (3 Marks)
- (b) A student is attempting to print a programming documentation. The printer is not responding to the print command. Explain **four** possible causes for the anomaly. (4 Marks)
- (c) Describe **three** mouse clicking techniques. (3 Marks)
18. (a) Despite the introduction of the ATM Card, human resource is still necessary in the banks. Give **two** reasons why humans are still needed. (2 Marks)
- (b) State **four** advantages to the users of the cards. (4 Marks)
- (c) Give two safety precautions that the card owners should observe to ensure security of their money. (4 Marks)
- (d) (i) What is virtual reality? (2 Marks)
- (ii) List three areas where virtual reality is used? (3 Marks)
19. (a) Distinguish between logical and physical computer files. (2 Marks)
- (b) (i) Define the term computer ethics. (1 Mark)
- (ii) Give two examples to show how a person who has committed a computer crime can help to improve a computer system. (2 Marks)

- (c) (i) What is a search engine? (1Mark)
- (ii) The internet can be used to source information about emerging issues that may not be available in print form. Give **two** advantages and **two** disadvantages of information obtained from the internet. (4 Marks)
- (d) A recent breakthrough in the manufacturing industry is the development of a full manufacturing plant that can produce vehicles using robots only. Despite these advances, some manufactures prefer to use human labour. Give **three** advantages and **two** disadvantages of fully automated manufacturing. (5 Marks)
20. (a) (i) Give **one** advantage of using GUI over a Command Line Interface. (1Mark)
- (ii) Some computer systems still use command line interfaces. State **two** advantages of command line interface. (2 Marks)
- (b) (i) Distinguish between operating system software and utility software. (2 Marks)
- (ii) Name two utility programs. (2 Marks)
- (c) (i) Outline three precautions one should take when assembling a computer. (3 Marks)
- (ii) Give three reasons why one might purchase a computer with a one year warranty instead of a three year warranty. (3 Marks)
- (d) Distinguish between serial and parallel communication ports of a computer. (2 Marks)

Name.....Index Number

451/1
COMPUTER STUDIES
Paper 1
(THEORY)
Oct./Nov. 2006
2 y hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1
(THEORY)

2 j hours

INSTRUCTIONS TO CANDIDATES

*Write your name and index number in the spaces provided above.
This paper consists of TWO sections; A and B.
Answer ALL the questions in section A.
Answer question 16 and any other THREE questions from section B.
All answers should be written in the spaces provided on the question paper.*

For Official Use Only

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

This paper consists of 12 printed pages.

Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

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

- 1 What is meant by:
- (a) analogue data (1 mark)
- (b) digital data? (1 mark)
- 2 Distinguish between transcription and transposition types of errors and give an example of each. (4 marks)
- 3 (a) What are peripheral devices? (1 mark)
- (b) Give **two** examples of peripheral devices. (1 mark)
- 4 (a) What is meant by the term userfriendly as used in software development? (1 mark)

- (b) Distinguish between the terms single-tasking and multi-user as used in operating systems. (2 marks)

5 What actions should be taken in case of a fire outbreak in the computer laboratory? (4 marks)

6 (a) What is an Internet Service Provider? (1 mark)

(b) An employee in a business company is charged with the responsibility of putting the company advertisements on the internet.

(i) State the professional title of the employee. (1 mark)

(ii) Give an example of software used by this employee to carry out the above task. (1 mark)

7 Differentiate between COM ports and LPT ports. (2 marks)



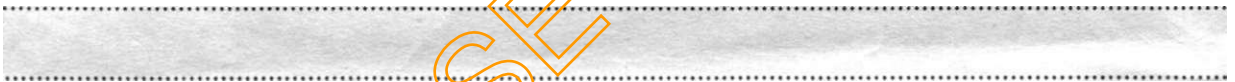
5

12 (a) List **two** arithmetic operations that can be performed on a row of numeric data in a word processing table. (1 mark)

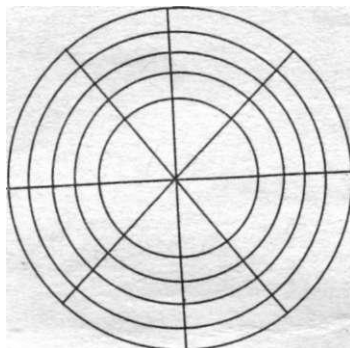
(b) In each case of (a) above, write the expression used. (2 marks)

13 List **two** methods of gathering information during system development process. (2 marks)

14 Name **three** types of optical disks. (3 marks)



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



Shade and label:

(a) one sector

(1 mark)

(b) one block

(1 mark)

Answer question 16 and any other three questions from this section in the spaces provided.

- 16** (a) List **two** examples of:
- (i) third generation languages (2 marks)

 - (ii) object oriented languages. (2 marks)
- (b) Draw a flowchart to compare three non-equal numeric values A, B, C and print the largest of the three. (11 marks)

KCSE 2006

One of the functions of an operating system is job scheduling.
Explain what is meant by job scheduling.

(1 mark)

List and explain three types of user interfaces.

(6 marks)

Describe the following categories of software:

(i) firmware

(1 mark)

(ii) proprietary software.

(1 mark)

A new company XYZ intends to go into the business of desktop publishing.
Advise the company on **three** computer hardware system specification features to consider as a measure of enhancing performance.

(6 marks)

Distinguish between the following sets of terms as used in spreadsheets.

(i) Worksheet and workbook.

(2 marks)

Turn over

(ii) Filtering and sorting.

(2 marks)

(b) State one way in which a user may reverse the last action taken in a spreadsheet package. (1 mark)

(c) The following is a sample of a payroll. The worksheet row and column headings are marked 1, 2, 3,... and A, B, C,... respectively

1	A	B	C	D	E	F	G	H
	NAME	HOURS WORKED	PAY PER HOUR	BASIC PAY	ALLOWANCES	GROSS PAY	TAX DEDUCTIONS	NET PAY
2	KORIR	12	1500					
3	ATIENO	28	650					
4	MUTISO	26	450					
5	ASHA	30	900					
6	MAINA	18	350					
7	WANJIKU	22.5	500					
8	WANYAMA	24.5	250					
9	OLESANE	17	180					
10	MOSETI	33	700					
	TOTALS							

Use the following expressions to answer the questions that follow:

- Basic pay = Hours worked x pay per hour
- Allowances are allocated at 10% of basic pay
- Gross pay = Basic pay + allowances
- Tax deductions are calculated at 20% of gross pay
- Net pay = Gross pay - tax deductions.

Write formulae using cell references for the following cells:

(i) D2

(1 mark)

- (ii) E4 (1 mark)
- (Hi) F10 (1mark)
- (iv) G7 (1 mark)
- (v) H5 (1 mark)
- (d) (i) State **three** ways of moving round the page in a Desktop Publishing window. (3 marks)
- (ii) State **two** ways on how Information & Communication Technology (ICT) can be used to reduce the spread of HIV/AIDS. (2 marks)

19 (a) Describe the following terms with reference to security of data:

- (i) log files (1mark)
- (ii) firewalls. (1 mark)

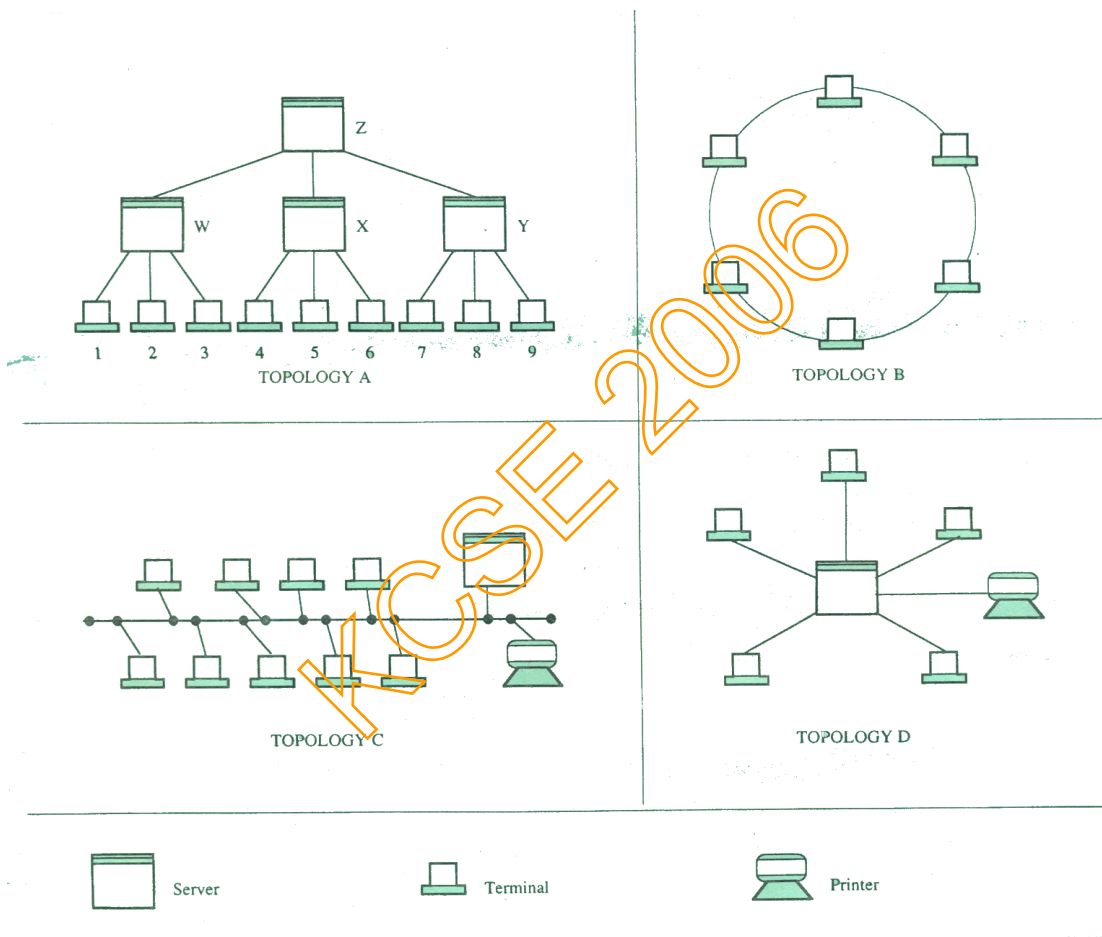
- (b) A students' database comprises of students' details table and fees received table as shown below:

Students' details table	Fees Received table
Surname	
Middle Name	Date
First Name	Amount
Admission Number	<u>Receipt Number</u>
Course	

- (i) State the primary key field for each table. (2 marks)
- (ii) State the field which should serve as the linking field for the two tables. (2 marks)
- (c) Describe the following terms with respect to computer security:
- (i) logic bombs (2 marks)
- (ii) physical security (2 marks)
- (iii) tapping. (2 marks)

(d) List three functions of an antivirus software. (3 marks)

20 (a) The diagram below shows four common network topologies A, B, C and D.



(i) Name the network topologies labelled A, B, C and D. (4 marks)

A

B.....

C.....

D..... ;

(ii) Explain what happens if server X in topology A fails. (1 mark)

(iii) List **two** problems associated with network topology B. (2 marks)

(iv) List **two** disadvantages associated with network topology D. (2 marks)

Differentiate between Internet and World Wide Web. (2 marks)

KCSE 2006

Describe the following network services and identify their applications.

(i) Voice mail. (2 marks)

(ii) Video conferencing. (2 marks)

Name

Index number

451/1

COMPUTER STUDIES

Candidate's signature

Paper 1

(THEORY)

Date.....

Oct./Nov. 2007

24 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1

(THEORY)

2 4 hours

Write your name and index number in the spaces provided above.

Sign and write the date of the examination in the spaces provided above.

This paper consists of TWO sections; A and B.

Answer ALL the questions in section A.

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

All answers should be written in the spaces provided on the question paper.

For official Use Only

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

This paper consists of 14 printed pages

Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

Answer **ALL** the questions in this section in the spaces provided.

Describe the computer booting process. (2 marks)

State the functions of the following keys on the computer keyboard: (2 marks)

(a) backspace

(b) insert (ins).

3 Jane has noticed the following problems in her computer:

- it is taking a longer time to start up;
- it is often hanging;
- applications are taking longer to load.

State **three** possible causes of these problems and how they can be solved. (3 marks)

- 4 (a) Define authenticity as used in software selection. (1 mark)
- (b) List **four** ways of acquiring software in an organization. (2 marks)
- 5 Some of the storage disks available are: Zip disks, 3 \ inch floppy disks, DVDs and 5 \ inch floppy disks. Arrange" these devices in an ascending order of storage capacity. (2 marks)
- 6 You have been asked to change your computer password. State a precaution you need to take in order to avoid each of the following:
- (a) forgetting the password (1 mark)
- (b) hacking. (1 mark)
- 7 State **four** benefits of using a computer in a school library. (2 marks)

8 Using six bits, find the two's complement of -2310. (4 marks)

9 Explain data series, axis and legend as used in spreadsheet charts: (3 marks) ^

data series.....

axis

legend.....

10 (a) Describe the term data integrity. (2 marks)

.....

(b) State **four** situations in which data may lose integrity. (2 marks)

11 State the function of each of the following:

(a) network interface card (1 mark)

(b) network protocol (1 mark)

(c) hub. (1 mark)

12 List **four** types of publications that can be designed by using desktop publishing software. (2 marks)

13 Differentiate between the following pairs of terms as used in database design: (2 marks)

(a) input mask and design

(b) table and query.

(2 marks)

14 List **four** factors to be considered when purchasing an operating system.

(2 marks)

15 Write an algorithm to compute the area of a triangle.

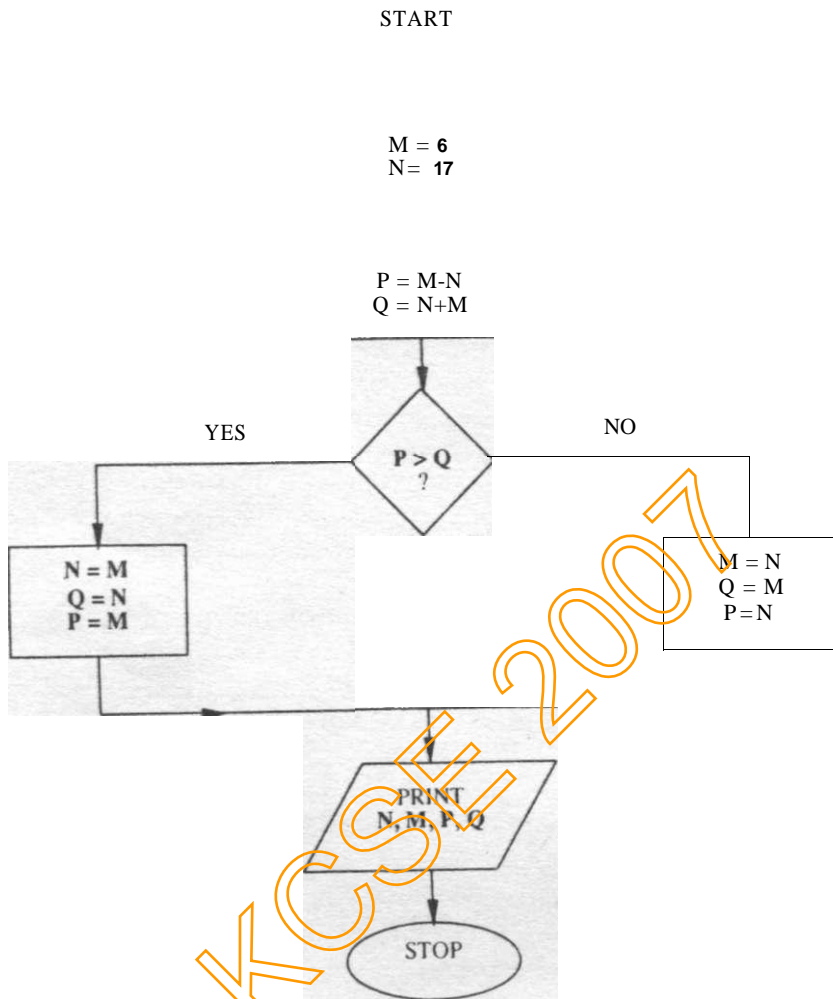
(2 marks)

KCSE 2007

SECTION B (60 marks)

Answer **question 16** and any other **THREE** questions from this section in the spaces provided.

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



(i) Name the control structures used in the flowchart. (2 marks)

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

M.....N.....
P.....Q.....

(iii) Write the pseudocode for the flowchart.

(8 marks)

KCSE 2007

List **four** functions of an assembler.

(2 marks)

Define the following web related terms:

(i) web browser

(1 mark)

(ii) hyperlink

(1 mark)

(iii) hyper text document.

(1 mark)

List **six** activities performed on the web.

(3 marks)

An institution has ten stand-alone computers.

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

Turn over

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

(d) Below is an e-mail address:

ggitau @moest.edu.ke

(i) (ii) (iii) (iv)

Name the parts labelled (2 marks)

(i)

(ii)

(iii)

(iv)

18 A computer C directory has folders for **Form 1, Form 2, Form 3** and **Form 4**. Each class has student's folders labelled according to their admission number. The students create their own folder for the subject they are studying based on the table shown below.

Form 1	Form 2	Form 3	Form 4
OS	SP	Prog.	ADB
WP	DTP DB	Internet	

Assuming there is one student per class, draw the corresponding tree structure. (6 marks)

- (i) A form four student wants to create a folder to store her project. State the path for that project folder. (2 marks)
-

- (ii) Suggest how the student can ensure that work is not lost in case the hard disk fails; (1 mark)
-

the project is not copied by other students. (1 mark)

- (i) Other than I/O devices, list other three devices under the control of the operating system. (3 marks)

- (ii) Explain any **one** of the devices named in (c)(i) above . (1 mark)
-

Turn over

- (d) Define the term trouble shooting. (1 mark)

A manager wishes to replace the current manual system with a computerised one.

- (a) Describe **three** main areas that must be evaluated to justify the replacement. (6 marks)

- (b) List the **three** areas that would be considered in the requirements specifications. (3 marks)

- (c) State and explain **three** ways that can be followed to replace the current system. (6 marks)

- 20** (a) A headteacher keeps the following student details in a database: Name, Address, Town, Date of birth, Marks scored, Fees paid.
- (i) Name the most appropriate primary key. Give a reason. (2 marks)
- (ii) For each item in the student's details above, indicate its most appropriate datatype as used in the database. (3 marks)
- (iii) Explain why input screens are better data entry designs than entering data directly to a table. (2 marks)
- (b) List **two** career opportunities associated with databases. (2 marks)
- (c) Distinguish between:
- (i) a table in word-processing application and a table in a database application (2 marks)

(ii) mouse pointer and insertion point.

(2 marks)

(d) Outline the steps to be followed in order to merge cells in a word processing table.

(2 marks)

KCSE 2007

NAME

Index No.

/

451/1
COMPUTER STUDIES

Candidate's Signature

Paper 1
(THEORY)
Oct./Nov. 2008
2½ hours

Date

THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education
COMPUTER STUDIES

Paper 1
(THEORY)
2½ hours

Instructions to candidates

Write your name and index number in the spaces provided above.
Sign and write the date of the examination in the spaces provided above.
This paper consists of **two** sections; A and B.
Answer **all** the questions in section A.
Answer question **16** and any other **three** questions from section **B**.
All answers should be written in the spaces provided on the question paper.

For Examiner's Use Only

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

This paper consists of 15 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

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

1 (a) Describe an input device. (1 mark)

(b) Other than scanning devices, name **two** other input devices. (1 mark)

2. Distinguish between the following:

(a) CRT and LCD (2 marks)

(b) OCR and OMR. (2 marks)

KCSE 2008

3. (a) What is meant by freeware? (1 mark)

(b) State **two** ways of acquiring freeware. (1 mark)

4. Describe the term 'home page' as applied in the internet. (2 marks)

5. (a) Define the term Computer Aided Design. (1 mark)

(b) List **three** advantages of using Computer Aided Design. (3 marks)

KCSE 2008

..... in fit.....

6. List **three** ways in which computer technology can be used in law enforcement. (3 marks)
7. A computer system is able to work on both spreadsheet and wordprocessing documents. Explain how a computer can operate two packages at the same time. (2 marks)
8. Describe each of the following types of computers (2 marks)
- (a) hybrid;
- (b) embedded.
9. State two purposes of the maintenance phase of the system development life cycle. (2 marks)

10. (a) List **four** stages in data collection. (2 marks)

(b) What is meant by the following: (2 marks)

(i) transaction file;

(ii) master file?

11. Headache, back and neck pain may result from use of computers. State how each of them can be minimised. (2 marks)

12. State **two** ways in which each of the following can be prevented: (4 marks)

(a) software errors;

(b) computer fraud.

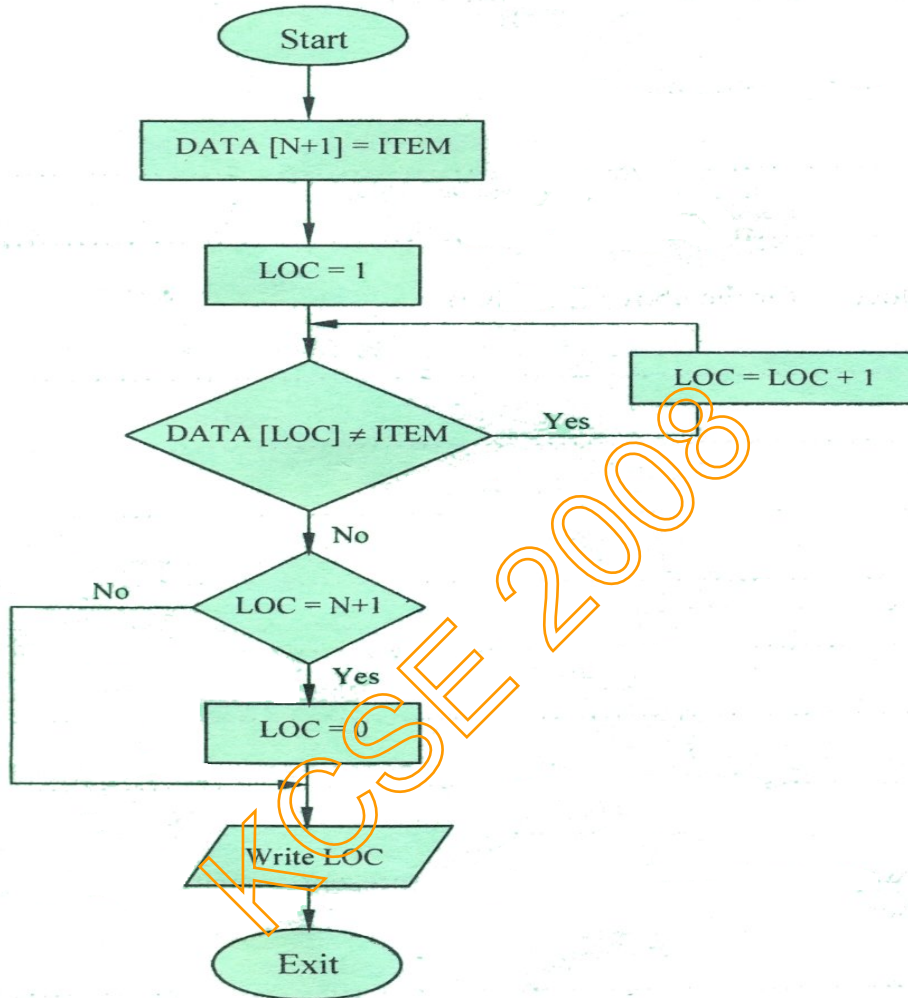
13. In relation to DTP, state the:
- (a) purpose of frames; (1 mark)
- (b) difference between an inside margin and an outside margin. (2 marks)
14. Distinguish between formatting a disk and scanning a disk with reference to operating systems. (2 marks)
15. State **two** advantages of using robots in manufacturing of goods. (2 marks)

KCSE 2008

SECTION B (60 marks)

Answer question **16** and any other **three** questions from this section in the spaces provided.

16. Study the flow chart below and answer the questions that follow.



If DATA is the following sorted list of 13 elements, such that $N = 13$:
(where N is the number of elements in the list), 11, 22, 30, 33, 40, 44, 55, 60, 66, 77, 80, 88, 99.

- (a) Determine the output from the flowchart if ITEM is:

(i) 40 (2 marks)

(ii) 99 (2 marks)

(iii) 120 (2 marks)

(iv) 5 (2 mark)

(b) Explain the purpose of this flowchart. (2 marks)

(c) Write a pseudocode for the above flowchart. (5 marks)

KCSE 2008

17. (a) Describe **two** ways in which a computer can represent a positive number and a negative number. (2 marks)

- (b) A particular computer stores numbers in a single 8-bit word. How would it represent 0.3125_{10} ? (3 marks)
- (c) What is the decimal equivalent of the number 1.01112 ? (2 marks)
- (d) Perform the decimal subtraction $14_{10} - 6_{10}$ using
- (i) regular binary; (3 marks)
 - (ii) one's complement. (5 marks)
- KCSE 2008

18. (a) List **three** advantages and **three** disadvantages of wired communication over wireless communication. (6 marks)

Advantages

Disadvantages

- (b) Describe the following signals and state where each is applied in network communication: (4 marks)

(i) analog;

(ii) digital.

- (c) Name the **two** types of coaxial cables. (2 marks)

- (d) (i) Define the term network protocol. (1 mark)

- (ii) List **four** internet protocols. (2 marks)

19. The information below is maintained by the patron of wildlife club in a school. Study it and answer the questions that follow.

Name	Class	Admission Number	Membership Number	Group
Mary	4E	3740	S 001	Serengeti
Gupta	3W	3802	T001	Tsavo
Carey	2N	3949	T003	Tsavo
Gregory	4W	3762	M001	Mara
Sanjay	3N	3800	A 001	Amboseli
Mariam	2E	3925	S 002	Serengeti
Josephine	2W	3926	N001	Nairobi
Elvis	4N	3746	AB 001	Aberdare
Carey	3E	3805	T002	Tsavo
Gordon	1W	4029	N002	Nairobi
Paul	IN	4013	M002	Mara

- (a) Describe the field values, records and file. (3 marks)

- (b) State the most appropriate primary key for the list. (1 mark)

- (c) State the most appropriate data type for the fields:

- (i) admission number; (1 mark)

- (ii) membership number. (1 mark)

(d) If a database was to be created for the list; Forms, Tables, Queries and Reports are likely to be used.

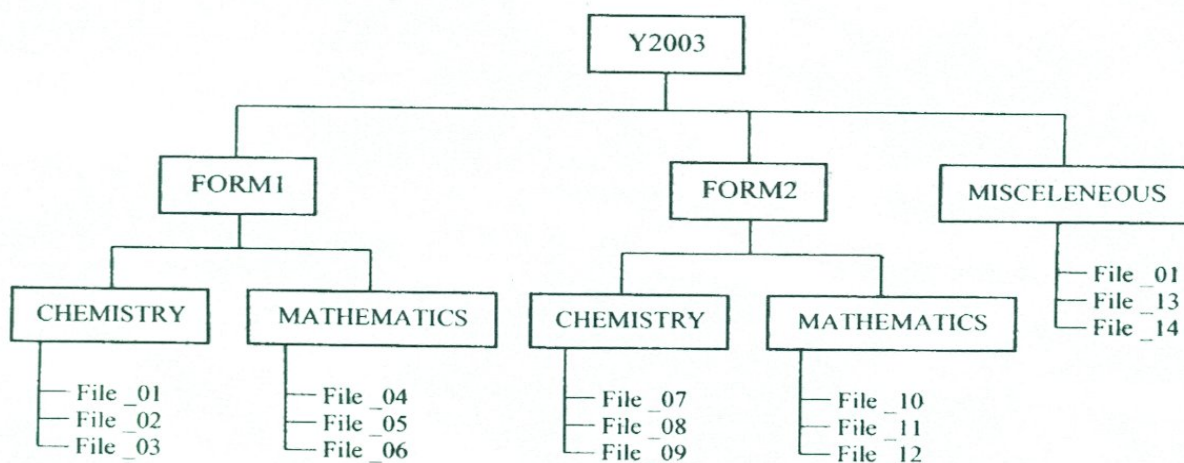
(i) State the purpose of each of these objects. (4 marks)

(ii) Which objects cannot be used to store the data in the list? (3 marks)

(i) How many field values are in the list? (1 mark)

(ii) How many records are in the list? (1 mark)

An operating system organises files in directories as shown in the chart below.
Study it and answer the questions that follow.



- (a) (i) What is the name of this file structure? (1 mark)
- (ii) One of the files in MISCELLANEOUS has a file name similar to one in CHEMISTRY in Form 1. Describe what happens if all the contents of CHEMISTRY are copied to MISCELLANEOUS. (2 marks)
- (iii) What will happen if an attempt is made to delete FORM2 while File10 in MATHEMATICS is open? (1 mark)

Turn over

- (iv) State **four** advantages of this structure. (2 marks)

State **four** properties that an operating system displays about a file. (2 marks)

A removable storage media unit connected to a single user microcomputer system is used for permanent storage of programs and data. State **six** file functions you would expect the operating system of the computer to provide to enable the user to maintain this storage media. (3 marks)

State two tasks performed by the operating system in each of the following resources:

- (i) memory; (2 marks)

(ii) input/output devices.

(2 marks)

KCSE 2008

Name Index No

451/1

COMPUTER STUDIES

Candidate's signature

Paper 1

(THEORY)

Date.....

Oct/Nov. 2009

2 1/2 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES Paper

1 (THEORY)

2 1/2 hours

Instructions to Candidates

- (a) Write your name and index number in the spaces provided at the top of this page.
- (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) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

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Section	Question	Score
A	1 - 15	
B	16	
	17	
	18	
	19	
	20	
Total		

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Certificate of Secondary Education COMPUTER STUDIES Paper 1

9089

(THEORY)

SECTION A (40 marks) *Answer ALL the questions in this*

section in the spaces provided. Give a reason for each of the following: (a)

changing a password regularly;

(1 mark)

(b) typing and re-typing a new password when changing it.

(1 mark)

With reference to quality of print, noise level and cost, compare a dot matrix with a Laser printer.

A computer accessories vendor needs to order supplies. A spreadsheet is used to calculate the order part of which is shown below.

	A	B	C	D
1.	Item	Price per unit	Number ordered	Cost (Kshs)
2.	56K modem	8,565.00	60	
3.	128 MB Ram	4,950.00	40	
4.	Pentium IV Processor	13,525.00	55	
5.			Total	

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Certificate of Secondary Education COMPUTER STUDIES Paper 1
(THEORY)

(a) Write the formula that can be used in:

(i) D2

(1 mark)

(ii) D5

1 mark)

(b) If a value added tax (VAT) of 16% was charged on each item and the number ordered was decreased by 10%, write a new formula that can be used in D2.
(2 marks)

4 List **two** uses of computers in meteorology. (2 marks)

5 Explain the following terms as used in desktop publishing: (2 marks)

(a) embedded object

(b) autoflow.

KCSE 2009

(a) Name **four** approaches that may be used to replace a Computerised Information system.
(2 marks)

(b) Which of the approaches named in (a) above is appropriate for critical systems?
Explain. (2 marks)

7 Explain the following operating system functions:

(a) job scheduling; (1 mark)

(b) interrupt handling. (1 mark)

- 8 Name **four** toggle keys on a standard computer keyboard. (2 marks)
- 9 A computer user typed the name Kajiado as Kajaido and 8726 as 8126. (a)
State the type of each error. (1 mark)
- (b) Explain how such errors can be controlled. (2 marks)
- 10 Describe Third Generation Languages and name **two** examples. (2 marks)

- 11 (a) (i) What is an internet protocol (IP) address? (1 mark)
- (ii) Why is an IP address necessary? (1 mark)
- (b) What is the purpose of the following internet domains? (i) (1 mark)
- .org
- (ii) .gov
- 12 (a) Name **two** types of buses found on the computer motherboard. (2 marks)
- (b) State the purpose of each of the types of buses named in (a) above. (2 marks)
- 13 (a) Name the **two** files commonly used in mail merge. (1 mark)

(b) Name and explain the **two** types of dropcaps. (2 marks)

Give **three** ways in which horticultural farmers can benefit from the use of Information and Communication Technology (ICT). (3 marks)

Arrange the following job titles in the order of their seniority.

Database administrator, ICT manager, Systems analyst. (1 mark)

KCSE 2009

SECTION B (60 marks) Answer question **16** and any other **three**

questions from this section in the spaces provided.

16 Study the flowchart below and answer the questions that follow.

^ START ^

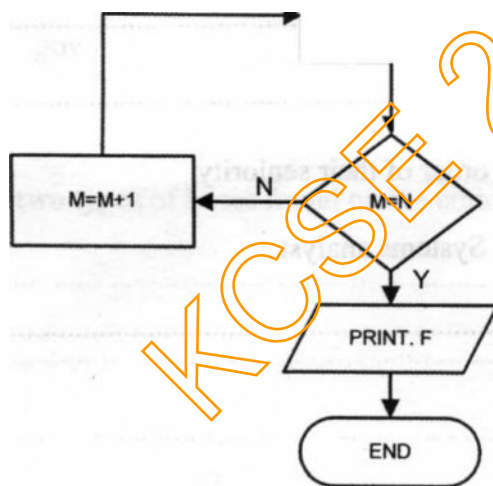
READ N

M	=1	=1
F	=	
1		i
F=F		xM

(a) What would the flowchart generate as output if the value of N at input was:

(i) 6?

(2 marks)



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Certificate of Secondary Education COMPUTER STUDIES Paper 1 (THEORY)

9089

(ii) 1?

(2 marks)

Write a pseudocode that does the same thing as the flowchart above.

(7 marks)

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Certificate of Secondary Education COMPUTER STUDIES Paper 1

(THEORY)

09462

Turn over

(c) Modify the flowchart so as to reject an input below 0 and to avoid the looping when the input is 0.

(4 marks)

KCSE 2009

A lecturer keeps the following student details in a database: name, age, course.

(a) Write an expression you would use to compute the year of birth of a student using this year as the current year.

(2 marks)

(b) What query expressions would the lecturer use to list the students whose age is above 15 years and below 25 years? (3 marks)

(c) Which expression would the lecturer use to generate: (i)
the number of students in the database? (2 marks)

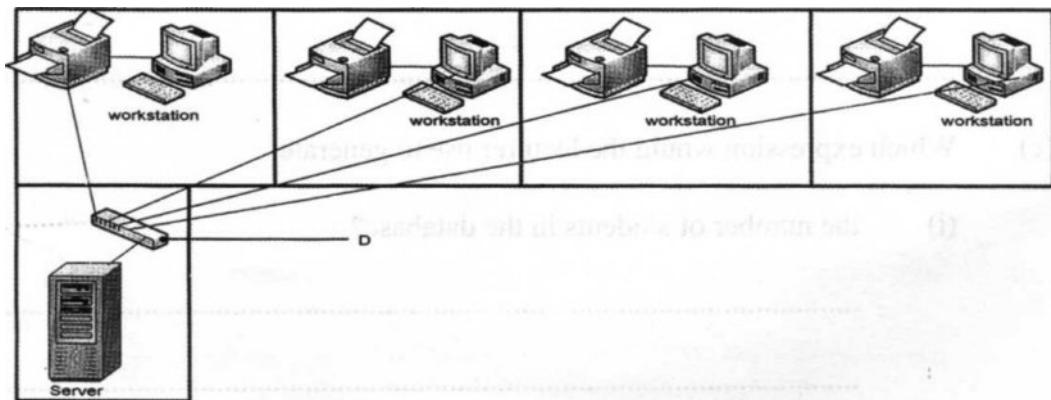
(ii) the mean age of the students in the database? (2 marks)

(d) Name and describe any **two** types of database models. (6 marks)

KCSE 2009

18
(a)

The diagram below shows a layout of a computer network used by a law firm. A workstation and a printer are located in every consulting room.



- (i) Name the network topology depicted in the diagram. (1 mark)
- (ii) Name the device labelled D. (1 mark)
- (iii) State **four** functions of the device labelled 'server' (4 marks)

KCSE 2009

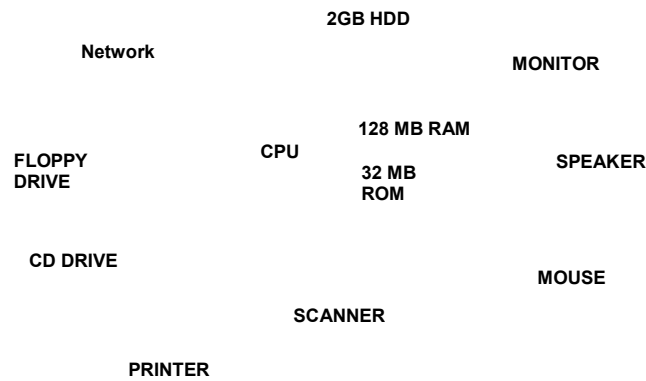
Give **two** advantages and **one** disadvantage of the above network design.
(3 marks)

(v) If the firm intends to open extra offices in two different towns, name any **three** hardware devices that would be required. (3 marks)

(vi) State any **two** security problems that might arise by linking the offices in different towns. (2 marks)

What is spy ware? (1 mark)

- 19 (a) Study the following diagram and answer the questions that follow.



From the diagram:

- (i) Name **two** devices that are used for long term storage. (2 marks)
- (ii) Name **three** peripherals shown on the diagram that are used for input. (3 marks)
- (iii) Name **two** other devices that a Computer Aided Design (CAD) user might wish to add to the set-up above. (2 marks)

A customer wishes to purchase a computer system. The customer can buy word processor, spreadsheet, database and a drawing package separately or as an integrated

package. State **three** advantages why many computer users prefer integrated packages to separate packages. (3 marks)

- (i) An anti-virus software installed in a computer is loaded into the main memory each time the computer is switched on.
Explain **three** ways in which computer viruses are spread from one computer to another. (3 marks)

- (ii) Give **two** reasons why an anti-virus package should be updated regularly. (2 marks)

Perform the following binary arithmetic and give your answers in decimal notation:

- (i) $1010.101 + 11.011$ (3 marks)

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- (ii) $1010.011 - 11.011$ (3 marks)

Covert the following numbers into their binary equivalent:

(i) 0.5625_{10}

(3 marks)

(ii) 0.3125_{10}

(3 marks)

Using four-bit twos complement, perform the following arithmetic
(3 marks)

$101_2 - 111_2$

KCSE 2009

THIS IS THE LAST PRINTED PAGE

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Kenya Certificate of Secondary Education COMPUTER STUDIES
Paper 1 (THEORY) 09462*

Name:

Index No

451/1
COMPUTER STUDIES

Candidate's Signature

Paper 1
(Theory)
OctyNov. 2010

Date.....

oJ hours
, 2

THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education
COMPUTER STUDIES

Paper 1
(Theory)

o 1/2 hours
2

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**.
- (e) **ALL** answers should be written in the spaces provided on the question paper.
- (f) **This paper consists of 12 printed pages.**
- (g) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

For Examiner's Use Only

Section	Questions	Candidate's Score
A	1- 15	
B	16	
	17	
	18	
	19	
	20	
Total Score		

SECTION A (40 marks)

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

JK(sl **four** activities carried out by a data processing system. (2 marks)

(a) Define data communication. (1 mark)

(b) State **two** characteristics of an effective data communication system. (2 marks)

Explain why an intranet is a more secure way to share files within an organisation compared to the internet. (2 marks)

"**sen a f**ormal, and a function as used in spreadsheets. (2 marks)

5 State four functions which are specific to Network Operating Systems (4 marks)

6 The word raeajs appearing several times in a long story document composed using a DTP package. How would this word be replaced with the word content?. (3 marks)

Study the pseudocode below and determine its output. (3 marks)

1. (a) T 0
(b) M 0
(c) K 1
2. (a) M M+T
(b) T T+5
(c) K K+1
3. Repeat step 2 while K < 3
4. Write M, T
5. Exit step.

- 8 Give **two** reasons why, the use of finger prints and voice input can be used as reliable forms of security in computer systems. (2 marks)
- 9 State the purpose of each of the following memories in a computer system. (2 marks)
- (a) RAM
- (b) Hard disk
- 10 Explain why telecommuting is just suitable for a doctor when carrying out an operation on a patient. (2 marks)
- 11 Copyright laws are laws granting authors the exclusive privilege to produce, distribute, perform or display their creative works. It is a legal framework for protecting the works such as book publishing, motion-picture production and recording. State two challenges that are posed to these laws by ICT. (2 marks)

- 12 State **two** reasons why it is necessary to use standard furniture in a computer laboratory. (2 marks)
- 13 Describe the following terms as used in mail merging: (4 marks)
- (a) main document;
- (b) data source.
- 14 State **three** ways in which ICT can be used in shipping control. (3 marks)
- 15 A firm operates an order system that coordinates orders, raw materials and inventory across its three factories. Currently the orders are processed manually at each factory and communicated to the others over the phone . The management intends to computerise their operations. State the first two computer professionals who will be required and their roles. (4 marks)

SECTION B (60 marks)

Answer question 16 and any other three questions from this section in the spaces provided.

- (a) Machine language programs are more difficult to write than high-level language programs. State two reasons for this. (2 marks)

- (b) In order to process examination results of students in a school, their names, index numbers and scores in 11 subjects are required. The average score for each student is then determined and a grade assigned. This process is repeated for all 40 students in a class.

Draw a flowchart to:

- Read a student's name, index number and the scores in all the subjects.
- Determine the student's average score.
- Assign a grade to the student depending on the average score as follows:

Score	Grade
$80 < \text{score}$	A
$60 < \text{score} < 80$	B
$40 < \text{score} < 60$	C
$\text{score} < 40$	F

- Display the student's name, index number, average score and the grade.
- Repeat the above steps for all the students in the class. (10 marks)

f

- (c) Below is a list of program segments in different generations of programming languages. Identify the language for each. (3 marks)

(i) LDA 105
SUB 40
ADD 20

(ii) 10000110 10111101
01111000 00011100

(iii) For x: = 1 to 10 do

Write (x);

- 17 (a) The following are some of the phases in the systems development life cycle (SDLC): system analysis, system design, system implementation, system review and maintenance. State **four** activities that are carried out during the system implementation phase. (4 marks)
- (b) Give **three** reasons why system maintenance phase is necessary in SDLC. (3 marks)
- (c) State **two** instances where observation is not a viable method of gathering information during system analysis stage. (2 marks)
- (d) Various considerations should be made during input design and output design. State **two** considerations for each case. (4 marks)

Input design.

Output design.

- (e) State **two** reasons why an organisation may use other strategies of software acquisition other than developing their own. (2 marks)

- 18 (a) Using **two** examples, explain the term field properties as used in database design. (2 marks)

- (b) Below is an extract from a hospital database table.

Patient No	Name	Date Registered	Amount paid	Remarks
LDK/001	Mathew Olang	04/05/08	2500.00	To go for x-ray
LDK/004	Joy Chelimo	07/06/08	1200.00	Medicine to be ordered
LDK7008	John Kamau	09/08/08	3500.00	To be admitted for further check up
LDK/002	Gerald Wasike	02/04/05	800.00	To come back for review

- (i) State with reasons the most suitable data types for the following fields: (8 marks)

(I) patient No;

(II) date registered;

(III) amount paid;

(IV) remarks.

(ii) Which would be the most appropriate primary key field for the above table? (1 mark)

(iii) What is the purpose of a primary key field in database design? (1 mark)

(iv) Describe how information about patients who registered after 09/08/06 can be extracted from the database. (3 marks)

19 (a) Explain how data in a computer system is secured using: (4 marks)

(i) password;

(ii) user access level.

(b) State **three** characteristics of a suitable password. (3 marks)

(c) State two characteristics of a computer that is infected by computer viruses. (2 marks)

(d) (i) The figure below shows how data is transmitted through a public telephone line.

Name A, B, C and D.

(4 marks)

(ii) State **two** advantages of using fibre optic cables over satellite in data communication. (2 marks)

- 20 (a) Using ones complement, convert the decimal number -9 into a 6-bit binary number. (3 marks)
- (b) (i) State **three** standard coding schemes used in data representation. (3 marks)
- (ii) In a certain coding scheme, each character occupies 7 bits. Letters of the alphabet are assigned consecutive codes. If letter **N** is represented by 1010010;, What is the representation of letter **A** in this coding scheme? (3 mark)
- (c) Using twos complement, show how the arithmetic below would be carried out on a 8-bit computer system. (6 marks)
- (+54)-(+29)

THIS IS THE LAST PRINTED PAGE.

Name:..... Index No/.....

451/1
COMPUTER STUDIES

Candidate's Signature

Paper 1
(Theory)
Oct./Nov. 2011
2 ½ hours

Date

THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education
COMPUTER STUDIES

Paper 1
(Theory)
2 ½ hours

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** the questions in section **A**.
5. Answer question **16** and any other **THREE** questions from Section **B**.
6. **ALL** answers should be written in the spaces provided on the question paper.
7. **This paper consists of 13 printed pages.**
8. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

For Examiner's Use Only

Section	Questions	Candidate's Score
A	1 - 15	
	16	
B	17	
	18	
	19	
	20	
Total Score		



SECTION A (40 marks)

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

- 1 The text in the box below was composed using a wordprocessor. The current cursor position is between the words “is” and “an”.

Computer security is an increasingly important consideration. From authentication....

Describe what happens to the text in the box above when each of the following keyboard keys are pressed.

(3 marks)

- (a) tab

.....
.....

- (b) enter

.....
.....

- (c) home

.....
.....

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2011

- 2 State **four** characteristics which make computers better than human beings.

(4 marks)

.....
.....
.....
.....
.....

3 Give **three** reasons why primary storage devices are not used for secondary storage. (3 marks)

.....

.....

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.....

4 Asha has a hardware shop and lately, she is finding the task of managing daily sales in the shop overwhelming.

(a) State a retail system that she should acquire. (1 mark)

.....

(b) State **two** input devices that are used in retail systems. (1 mark)

.....

(c) Apart from enhancing the speed of operation, state **two** other benefits that Asha will gain from using such a system. (2 marks)

.....

.....

.....

5 The accounts department of a secondary school is using a system that generates invoices that are printed in triplicate using carbon papers.

(a) Name **one** type of printer suitable for this task. (1 mark)

.....

(b) Give a reason for your answer in (a) above (1 marks)

.....

.....

6 A secretary saved a document in a computer. After some time, she could not remember the name and the location of the file. State **four** file details that are assigned a file by the operating system which can assist in tracing the file. (2 marks)

.....
.....
.....

7 A student tried opening an application program on a computer that was functioning well. The program did not load and the operating system reported that the memory was insufficient. Give **two** causes of such response. (2 marks)

.....
.....
.....

8 State **two** measures that can be put in place to control piracy of software. (2 marks)

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9 Identify **three** hardware considerations to be made before installing an operating system. (3 marks)

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10 A water company sends out clerks to read water meters. The data collected by the clerks is then fed into the computer and then all the bills are printed at the same time.

(a) State **two** advantages of this approach. (2 marks)

.....
.....
.....

(b) Name this type of data processing. (1 mark)

.....

11 A school has acquired a system that imitates human teachers. Students can learn by getting answers from the system which they would normally get from the teacher. Give **three** advantages of this system. (3 marks)

.....
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.....
.....

12 Pesa Mingi company has offices in Nairobi and Kampala connected in a network. The management is convinced that someone is illegally gaining access to the data in their computers. State **three** ways in which the company can overcome this problem. (3 marks)

.....
.....
.....

13 State the purpose of each of the following in database design.

(a) input mask (1 mark)

.....
.....

(b) default value (1 mark)

.....
.....

14 State the importance of considering the following factors when acquiring a software.

(a) warranty; (1 mark)

.....
.....

(b) portability. (1 mark)

.....
.....

15 State two application areas of real time systems. (2 marks)

.....
.....

SECTION B (60 marks)

Answer question 16 and any other **three** questions from this section in the spaces provided.

16 (a) Give two characteristics of scripting languages. (2 marks)

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.....
.....

(b) Describe two types of errors that may be detected during program testing. (4 marks)

.....
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.....
.....

(c) A company's workers travel to work either by public or by private means. All workers are paid a travel allowance of Ksh. 200, but those using private means are paid an additional Ksh. 100.

(i) Write a pseudocode to determine a worker's travel allowance. (3 marks)

.....

.....

.....

.....

.....

(ii) Draw a flowchart to determine a worker's travel allowance. (4 marks)

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(iii) Other than occupying large space, state **two** disadvantages of using a flowchart instead of a pseudocode. (2 marks)

.....
.....
.....
.....

17 (a) State **three** standard data coding schemes used in computing and electronic systems. (3 marks)

.....
.....
.....

(b) Convert each of the following numbers:

(i) 110.101_2 to decimal; (3 marks)

.....
.....
.....
.....

(ii) 12.6875_{10} to binary; (4 marks)

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.....

(c) Subtract 110.01_2 from 11001.0101_2 . (2 marks)

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- (d) Using twos complement, perform the following binary arithmetic leaving the answer in binary notation.

$1101_2 - 100101_2$

(3 marks)

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- 18 (a) What is meant by each of the following terms as used in table creation?

(i) cell margin;

(1 mark)

(ii) nested table.

(1 mark)

- (b) State **four** types of text wrap that can be applied to a graphic.

(2 marks)

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.....

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.....

- (c) Distinguish between each of the following:

(i) axis labels and data labels;

(2 marks)

.....

.....

.....

.....

(ii) cropping and sizing. (2 marks)

(d) Figure 1 shows a section of a worksheet containing information on household items. Use it to answer the questions that follow.

	A	B	C	D	E
1	ITEM DESCRIPTION	NO OF UNITS	COST PER UNIT	TOTAL COST	
2	Wheat flour	12	110		
3	Rice	6	145		
4	Sugar	7	140		
5	Salt	2	20		

Figure 1

(i) Write a formula to calculate the total cost of rice. (1 mark)

(ii) The prices of all items increased by 10% and the value 10% is placed in cell B8. Using cell addresses with absolute referencing only, write a formula to calculate the new unit price of salt. (2 marks)

(iii) Write a function to display the number of cells in which the cost per unit is equal to 110. (2 marks)

(iv) Write a function to display the least total cost for all items. (2 marks)

19 (a) What is meant by each of the following terms as used in the internet?

(i) surf; (1 mark)

.....
.....

(ii) uploading; (1 mark)

.....
.....

(iii) inbox. (1 mark)

.....
.....

(b) A school has set up its network using wireless technology to link computers. State **three** problems that the school is likely to experience when using this technology. (3 marks)

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2011

(c) List **three** ways by which parents can protect their children from accessing inappropriate content from the internet. (3 marks)

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.....

(d) Explain **three** problems associated with using e-mail technology for communication. (6 marks)

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20 (a) Explain **three** reasons why an organization may need to change to a new computerised system. (6 marks)

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2011

(b) State why each of the following is important in system documentation. (1 mark)

(i) sample data;

.....

.....

(ii) output reports. (1 mark)

.....

.....

- (c) Name the tools used for data storage in each of the following methods of data processing.
(i) manual; (1 mark)

.....

- (ii) electronic. (1 mark)

.....

- (d) A teacher manages students' records by storing daily attendance information in a file called *register* and students' personal records such as year of birth and home address in a file called *students*.

- (i) Identify the types of computer files named above. (2 marks)

.....

.....

- (ii) Give a characteristic of data held in each file. (2 marks)

.....

.....

- (iii) Name the field that should be used to link the two files. (1 mark)

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THIS IS THE LAST PRINTED PAGE.

Name Index Number

451/1
COMPUTER STUDIES
Paper 1
(THEORY)
Oct./ Nov. 2012
2½ hours

Candidate's signature

Date



THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education
COMPUTER STUDIES

Paper 1
(THEORY)
2½ hours

451/1 - Computer Studies - P1
Tuesday 11.00 am - 1.30 pm
30/10/2012 (2nd Session)

Instructions to candidates

- (a) Write your name and index number in the spaces provided at the top of this page.
- (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 **18** printed pages.
- (h) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

For Examiner's Use Only

Section	Question	Score
A	1 - 15	
B	16	
	17	
	18	
	19	
	20	
Total		

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Kenya Certificate of Secondary Education, 2012
COMPUTER STUDIES
Paper 1

SECTION A (40 marks)

Answer ALL the questions in the spaces provided.

1 State **two** functions of the Control unit of a computer. (2 marks)

.....
.....
.....
.....

2 (a) Differentiate between hardware and software portability. (2 marks)

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.....
.....
.....
.....

(b) State **two** disadvantages of CD-ROM over magnetic disks. (2 marks)

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45111 2012

3 One way in which an organisation enforces security of its computer systems is by restricting the use of removable media such as floppy disks and flash memories. Give **two** reasons for this.

(2 marks)

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.....

4 (a) What is meant by Data Communication Equipment? (1 mark)

.....

.....

(b) List **six** examples of Data Communication Equipment. (3 marks)

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5 When purchasing a computer, the clock speed, RAM size, Hard disk size and monitor size are often quoted. State the unit for measuring: (2 marks)

- (a) Clock speed;
- (b) RAM size;.....
- (c) Hard disk size;.....
- (d) Monitor size.....

6 Name **three** types of graphics used in a word processor. (3 marks)

.....

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7 A student saved a document in a diskette. Later on the student found that the diskette could not open and therefore the work got lost. Give **three** precautions the student should have taken to ensure the work was not lost. (3 marks)

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.....

8 Differentiate between relative cell referencing and absolute cell referencing. (2 marks)

.....

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.....

9 State two:

(a) functions of an email software; (1 mark)

.....

.....

(b) protocols used in sending and receiving of emails. (1 mark)

.....

.....

10 With reference to word processing, describe the term:

(a) subscript; (1 mark)

.....

.....

.....

(b) section breaks. (1 mark)

.....

.....

11 Describe the following types of relationships as used in Database design: (4 marks)

- (a) One-to-one;
- (b) One-to-many.

.....

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.....

12 State the stage of system development life cycle in which each of the following activities take place:

(a) determination of the cost-effectiveness of a system; (1 mark)

.....

.....

(b) interviews; (1 mark)

.....

.....

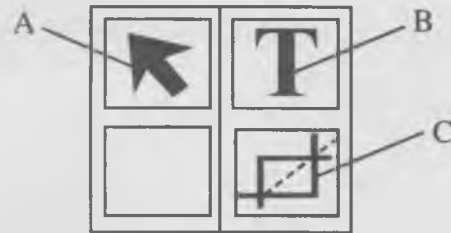
(c) replacement of an old system with a new one. (1 mark)

.....

.....

45111 2012

13 The figure below is a toolbar for a DTP package.



State the functions of the tools labelled A, B and C. (3 marks)

A:

.....

B:

.....

C:

.....

14 State **two** roles of a programmer in system development life cycle. (2 marks)

.....

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15 (a) What is meant by disk defragmentation? (1 mark)

.....
.....
.....

(b) State the purpose of disk defragmentation. (1 mark)


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451/1 2012

SECTION B (60 marks)

Answer question 16 and any other THREE questions from this section in the spaces provided.


16 (a) State the use of each of the following flowchart symbols. (3 marks)

(i) 

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.....

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(ii) 

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(iii) 

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(b) Below is an algorithm that is used to compute the values of R, S and T.

```
P = 5
Q = 6
INPUT N

If N is GREATER OR EQUAL TO 10
R = P * Q
S = Q - P
T = P + Q + R + S
ELSE
R = P + Q
S = Q
T = R + S
END IF
PRINT R, S and T
```

From the algorithm, determine the output if the input value of N is:

(i) 7; (3 marks)

.....

.....

.....

(ii) 10. (3 marks)

.....

.....

.....

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(c) Draw a flowchart for the algorithm in Question 16 (b).

(6 marks)

17 (a) Convert each of the following binary numbers to decimal equivalent given that the left most digit is a sign bit.

(i) 0 0 1 0 1 1 0 1 (2 marks)

.....
.....
.....

(ii) 1 1 0 0 1 0 0 1 (2 marks)

.....
.....
.....

- (b) Convert the decimal number 0.42 to 6 bit binary notation. (4 marks)

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- (c) Using two's complement, subtract 11_{10} from 8_{10} , leaving your answer in binary notation. (5 marks)

.....

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- (d) Perform the following binary operation. (2 marks)

$11001 + 1101 - 101$

.....

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18 (a) State **three** techniques used by a network administrator to detect and prevent computer crimes. (3 marks)

.....

.....

.....

(b) A company in town wishes to link its offices together. The linking may be through wireless or fibre optic network media.

(i) State **two** benefits that the company would gain from the use of metropolitan area network (MAN). (2 marks)

.....

.....

.....

(ii) State **three** advantages of using wireless over fibre optic network media. (3 marks)

.....

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.....

(iii) State **two** limitations of wireless communication. (2 marks)

.....

.....

.....

(iv) State **two** transmission media used in wireless transmission. (2 marks)

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45111 2012

- (c) State **three** ways in which computer virus infection can be prevented other than through restricting the usage of removable storage media. (3 marks)

.....

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.....

- 19 (a) (i) What is an information system? (1 mark)

.....

.....

.....

- (ii) State **two** roles of an information system. (2 marks)

.....

.....

.....

- (b) Describe the following file organisation methods:

- (i) random file organisation; (2 marks)

.....

.....

.....

- (ii) sequential file organisation. (2 marks)

.....

.....

.....

45111 2012

- (c) The following records were extracted from two files that contained student data.

File A:

<u>Reg. No.</u>	<u>Student Name</u>	<u>Sex</u>	<u>Address</u>
3002	Christine Onyancha	F	Box 8932 Kisii
3008	John Otieno	M	Box 7222 Nairobi
3001	Amina Muthee	F	Box 1243 Butere
3015	Peter Musyoki	M	Box 6621 Nyeri

File B:

<u>Reg. No.</u>	<u>Fees Payments</u>	<u>Date of Payment</u>
3002	1000	04/05/2011
3008	1500	03/09/2011
3001	900	02/01/2011
3015	400	01/09/2011

- (i) Which of the two files above represents a Transaction file? (1 mark)

.....

.....

- (ii) Give a reason for your answer in c(i) above. (1 mark)

.....

.....

- (iii) Name the other type of file represented above. (1 mark)

.....

.....

(d) An airline uses an information system whereby if a passenger at station A books a plane seat, this transaction is immediately shown at stations A and B such that no other passenger can book the same seat.

(i) Identify this data processing mode. (1 mark)

.....
.....

(ii) State **two** advantages and **two** disadvantages of this data processing mode. (4 marks)

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45111 2012

20 (a) With the aid of a diagram, describe the Hierarchical Database Model. (4 marks)

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(b) List **three** factors that should be considered when developing a database application and give reasons why each should be considered. (6 marks)

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(c) (i) Name **three** types of validation checks during data entry. (3 marks)

.....
.....
.....

(ii) Differentiate between primary key and index key. (2 marks)

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Name

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451/1
COMPUTER STUDIES

Candidate's Signature

Paper 1
(Theory)
Oct./Nov. 2013
2 $\frac{1}{2}$ hours
2

Date

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

COMPUTER STUDIES

Paper 1

(Theory)

2 $\frac{1}{2}$ hours

Instructions to candidates

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of the 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) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- (i) Candidates should answer the questions in English.

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



KNEC 43006101 KCSE

SECTION A (40 marks)

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

1 Write each of the following acronyms in full as used in computing. (2 marks)

(a) CAD

.....

(b) DVD

.....

(c) WORM

.....

(d) POS

.....

2 A school keeps student records in a database. The data is coded before entry. State **three** reasons why the coding is necessary. (3 marks)

.....

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3 Differentiate between Bcc and cc in an email. (2 marks)

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4 State **three** risks posed by improper cabling in a computer laboratory. (3 marks)

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.....

5 List **two** career opportunities directly associated with computer networking. (2 marks)

.....

.....

.....

6 A retailer uses a spreadsheet program to calculate profits. Figure 1 shows the spreadsheet.

	A	B	C	D	E	F
1	Items	Cost Price	Selling Price	Profit per Item	Items sold	Total Profit
2	Item 1	305	350	45	32	1140
3	Item 2	100	120	20	45	900
4	Item 3	200	220	20	32	640
5	Item 4	107	130	23	89	2047

Figure 1

(a) Which row contains labels only? (1 mark)

.....

(b) Write the formula that has been entered in cell F2. (2 marks)

.....

.....



7 State **three** reasons why an organisation may opt to develop its own software in-house rather than buy off-the-shelf software. (3 marks)

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8 The topology below is formed by combining two types of topologies.

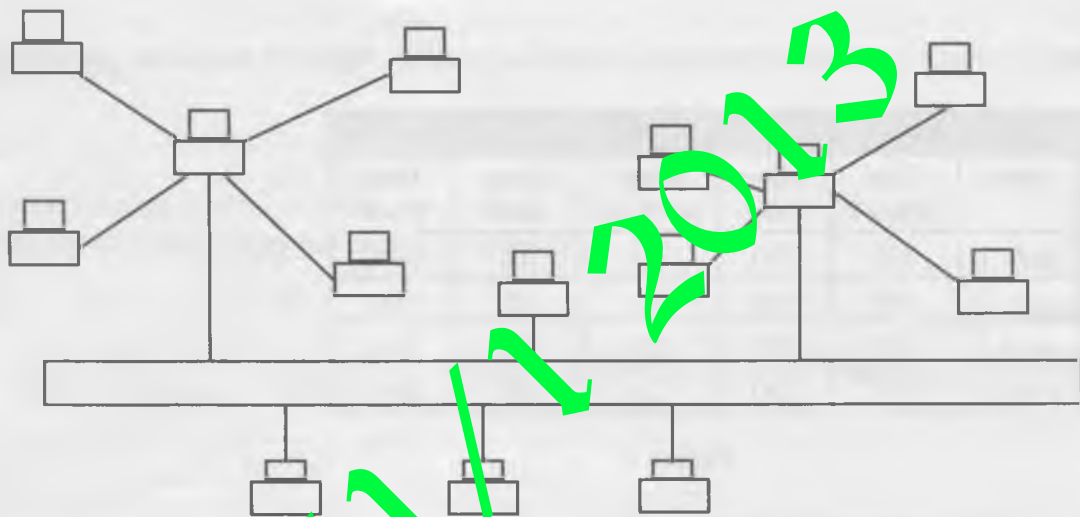


Figure 2

(a) Give **one** name for the combined topology in figure 2. (1 mark)

.....

(b) Name the **two** topologies forming the combined topology in figure 2. (2 marks)

.....

.....



9 An organisation intends to replace an existing system by carrying out the process in stages.

(a) Name this implementation strategy. (1 mark)

.....

(b) Give **two** reasons why the organisation is opting to use the implementation strategy in (a) above. (2 marks)

.....

.....

.....

10 (a) Explain the importance of disk partitioning. (2 marks)

.....

.....

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.....

(b) Differentiate between pull-down menu and pop-up menu as used in Graphical User Interface (GUI) operating systems. (2 marks)

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11 The 21st century has had many forms of ICT technologies improving the various means of communication. However, these changes have brought many challenges. State **three** negative social impacts of these technologies. (3 marks)

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12 Explain why a DTP application would be preferred to a word processing application when designing a publication. (2 marks)

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.....
.....

13 A computer is idle but the hard disk light is blinking, indicating some activity. State two possible causes of this. (2 marks)

.....
.....
.....

14 Describe **compatibility** as a factor to consider when purchasing a computer. (2 marks)

.....
.....
.....

15 Identify the appropriate output device for the production of each of the following:

(a) receipts where carbon copies are required; (1 mark)

.....

(b) an architectural drawing where precision is required; (1 mark)

.....

(c) output where the user is visually impaired. (1 mark)

.....



7
SECTION B (60 marks)

Answer question 16 and any other **THREE** questions from this section in the spaces provided.

16 (a) Figure 3 shows a flowchart. Use it to answer the questions that follow.

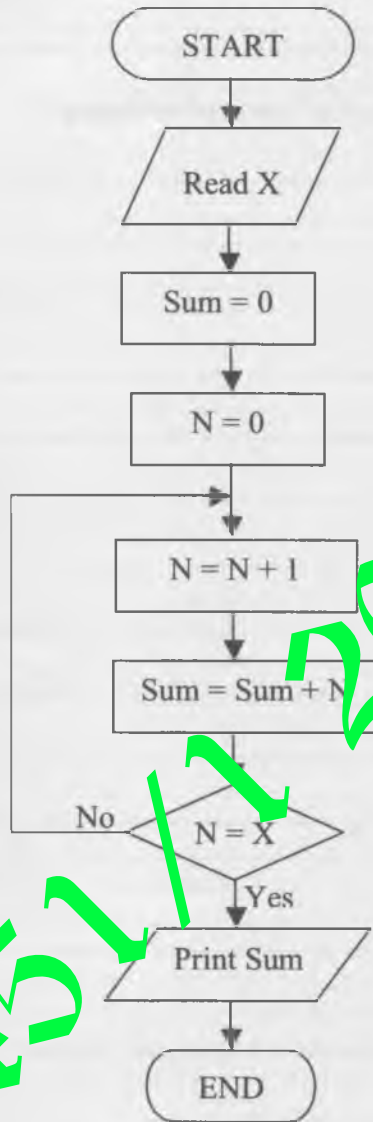


Figure 3

(i) Determine the output from the flowchart if:

I. $X = 5$;

(2 marks)

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17 (a) Describe **three** types of validation checks as used in data processing. (6 marks)

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(b) A company has opted to store its employees' personal details in a computer system. Describe **two** software methods that may be used to prevent unauthorized access to these details. (4 marks)

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(c) (i) Describe each of the following data processing modes:
I. real-time; (2 marks)

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II. interactive. (2 marks)

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(ii) State an application area where real-time data processing mode is applied. (1 mark)

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18 Figure 4 shows an advert placed in a newspaper. Use it to answer the questions that follow.

NEW ARRIVALS - LAP TOP COMPUTER	
HDD	Windows 8
300 GB	Home Edition
RAM	Free Suite
512 MB	• Word processor
Clock Speed	• Spreadsheet
2.3 GHz	• DTP
Optical Drive	• Presentation
DVD	• Internet browser
Screen	• Email
17 inches	Keyboard, Mouse, Modem
	Parallel port USB, serial
OTHER PCs AVAILABLE	

Ksh 48,0000

CALL 0622 405405

Figure 4

(a) (i) Define a laptop computer. (1 mark)

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(ii) The screen is said to be 17 inches. Explain what this means. (2 marks)

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(b) State **one** advantage of having each of the following provided with a laptop.

(i) modem

(ii) USB

(iii) free suite

(3 marks)

(c) State the software package in the free suite which is most suitable for each of the following:

(i) computing budgets

(ii) creating documents

(iii) designing of brochures

(iv) records management.....

(4 marks)

(d) (i) State **three** advantages of using a computer to design an advert such as the one in Figure 1. (3 marks)

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(ii) State **two** benefits of having the advert uploaded on the internet. (2 marks)

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19 A worker is unable to travel to the office but may still be able to do the office work through telecommuting.

(a) Explain why the worker may use each of the following:

(i) email; (2 marks)

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(ii) fax; (2 marks)

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(iii) digital camera; (2 marks)

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(iv) firewall.

(2 marks)

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(b) The worker needs to make regular backups of documents sent to the office.
State **three** reasons for this.

(3 marks)

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(c) Explain **two** benefits that the employer will get by allowing this worker to do the office work through telecommuting.

(4 marks)

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20 (a) (i) Differentiate between one's complement and two's complement in data representation. (2 marks)

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(ii) Explain the preference of binary number systems over decimal number systems in computers. (2 marks)

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(b) (i) Using one's complement, subtract 100011_2 from 010010_2 . (4 marks)

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(ii) Convert the number 21.03125_{10} to its binary equivalent. (5 marks)

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(c) Perform the following binary operations. (2 marks)

$1101 + 11011 + 101 + 11111$

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