

**451/1
COMPUTER STUDIES
THEORY PAPER
JULY/AUGUST 2008
TIME 2 ½ HOURS**

**LAIKIPIA DISTRICT JOINT MOCK EXAMINATION
Kenya Certificate of Secondary Education (KCSE) 2008**

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COMPUTER STUDIES
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MARKING SCHEME

SECTION A

1. Differentiate between ROM and RAM (2mks)
 - ❖ ROM (read only memory) it is used to store programmed instructions and data permanently or semi permanently.

- ❖ Data and instructions stored in ROM are those required to remain uncharged for long period of time. (accept any with 1mk)
- ❖ RAM (Random Access Memory). Its content can be read directly regardless of the sequence in which it is stored
- ❖ Its content is held temporarily and its content is lost once the computer is turned off (accept any with 1mk)

2.

- a) Convert the octal number
- 1111_8
- to its base ten equivalent (2mks)

Place value	$8^3(512)$	$8^2(64)$	$8^1(8)$	$8^0(1)$
Octal digit	1	1	1	1

Working out

$$N_{10} = (1 \times 8^3) + (1 \times 8^2) + (1 \times 8^1) + (1 \times 8^0)$$

$$= 512 + 64 + 8 + 1$$

$$N_{10} = 585$$

$$\therefore 1111_8 = 585_{10}$$

- b) Convert
- 11.011_{10}
- to a decimal number (2mks)

Solutions

Convert the integral and fractional parts separately then add them up

Weight	2	2	•	2^{-1}	2^{-2}	2^{-3}
Binary digit	1	1	•	0	1	1
Value in base 10	2	1	•	0	0.25	0.25

Integral part

$$(2^1 \times 1) + (1 \times 1^0) =$$

$$2.000 + 1.000$$

$$= 3.000_{10}$$

fraction part

$$0.50 \times 0 = 0.000$$

$$0.25 \times 1 = 0.250$$

$$0.125 \times 1 = +0.125$$

$$0.375_{10}$$

$$3.000_{10} + 0.375_{10} = 3.375_{10}$$

$$\text{Thus } 11.011_2 = 3.375_{10}$$

3.

- a) Define the following terms with reference to computer crime

i) Cracking

(1mk)

cracking refers to the use of guesswork over and over again by a person until he/she finally discovers a weakness in the security policies or codes of a software.

ii) Hacking

(1mk)

Hacking is done by a person who intentionally breaks codes and passwords to gain unauthorized entry to computer system data and information files.

- b) State any laws governing protection of information

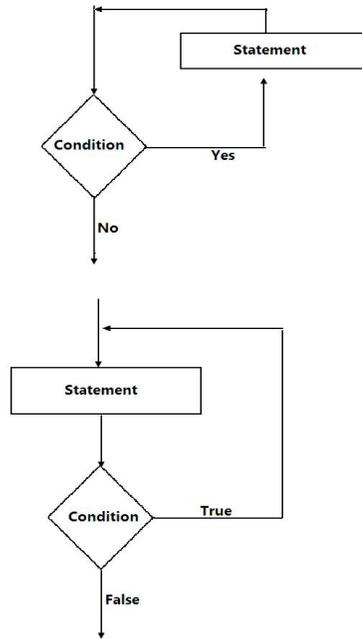
(2mks)

Laws governing protection of information

- ❖ Data be not transferred to other countries without the owners permission.
- ❖ Data and information should be kept secure against loss or exposure
- ❖ Data and information should be accurate and up to date

- ❖ Data and information be collected used and kept for specified lawful purposes.
(accept any 2mks)
4. Distinguish between Job scheduling and job sequencing (2mks)
Job scheduling – can only handle one task at a time therefore, the operating system has to determine which task will be processed first and makes sure that the one that is currently being processed is closely monitored to avoid wasting time in the processor.
Job sequencing – the operating system keeps a list of jobs or tasks currently being run and clocks them in and out of the processor.
5. List any four precautions that must be observed in a computer lab (2mks)
- ❖ Avoid smoking or exposing computer to dust
 - ❖ Avoid carrying food and beverages to the computer room
 - ❖ Avoid unnecessary movements because you may accidentally knock down peripheral devices
 - ❖ At all times following the correct procedure for starting and shutting down the computer to avoid loss of data and damage to computer programs.
 - ❖ Do not open up the metallic covers of computers or peripheral devices without permission and particularly when the computer power is still on
- 6.
- a) What is the major difference between a webpage and a website (2mks)
Website – Is a single page containing data ie Text pictures clips etc while a website is a collection of web pages
- b) Mention four database model that you have learnt (2mks)
- Flat file
 - hierarchical
 - Network
 - Relational
7. Differentiate between a computer operation and computer technician. (2mks)
- ❖ Computer operator is a person who centers data into the computer and keeps up to date records of all information processing activities.
 - ❖ Computer technician is a person who troubleshoot computer hardware & software, assembles and upgrade computers and also helps the engineer (hardware) in designing and creating some computer components such as storage device and motherboards.
8. Define the term mail-merge (2mks)
- ❖ Mail merge is the process of generating personalized letter or documents by combining a main document.
- 9.
- a) What is the advantage of electronic spread sheet over manual work (2mks)
Advantages of electronic spread sheet over manual work
- ❖ Utilizes the powerful aspect of the computer like speed, accuracy to enable the user quickly accomplish tasks
 - ❖ Offers a larger virtual sheet for data entry and manipulation.
 - ❖ Utilities large storage space on computer storage device to save and retrieve document
 - ❖ The user produces neat work due to lack of pencil pen work.
 - ❖ Have better document formatting capabilities
 - ❖ Inbuilt formulae that enable the user to quickly manipulate data
- b) What is cell referencing
- ❖ Cell referencing identifies a cell or range of cells on the worksheet and show MS Excel where to look for the values or data needed to use in a formula. (1mk)
10. State the TYPES of desk Top publishing (DTP) (2mks)

- ❖ Graphical based e.g. adobe Photoshop, corel draw
 - ❖ Harvard graphic
 - ❖ Layout based
11. List THREE elements of networking (3mks)
- ❖ Data communication media- optic fiber
 - ❖ Communication devices e.g. hub routers
 - ❖ Networking software eg network operating system
12. Briefly explain any THREE application areas of ICT (Information and Communication Technology) (3mks)
- ❖ financial system – payroll, accounting and banking
 - ❖ retail system – stock control, electronic point of sale
 - ❖ Reservation system
 - ❖ Education system - computer aided instruction, aided learning
E-learning & computer simulation
13. List any two types of
- a) Magnetic disk (1mk)
- ❖ CD's, CD – ROM, CDRW, CD-R
 - ❖ DVD
 - ❖ LS – 120 SUPER DISK
 - ❖ OPTICAL CARD
 - ❖ OPTICAL TAPE
- b) Magnetic disk
- Floppy disks
 - Zip disks
 - Jaz disks (1mk)
14. Distinguish between Disk formatting and disk partitioning (2mks)
- Disk formatting is the process of preparing new disk for use by imprinting empty sectors and tracks on the surface of disk while disk partitioning is the process of dividing a large physical disk into two or more partitions called logical drives
- 15.
- a) State and define any two types computer processing file (1mk)
- Master file, main file that contain permanent records of a particular entry.
- b) List any TWO file organization methods (2mks)
- sequential organization
 - index-sequential organization.
- SECTION B (60 MARKS)**
- 16.
- a) Consider the module flow charts extracts below



State the looping structure demonstrated in (2mks)

- i) While –do -structure
- ii) Repeat -until

b) State FOUR examples of third generation languages (2mks)

- i) Pascal
- ii) Fortran
- iii) COBOL
- iv) BASIC
- v) Ada

c) Define the following terms as used in programming (2mks)

- i) Assembler
Translate assembly language in machine code.
- ii) Compiler
Translates entire source program into object code.
- iii) Translator
Convert source program into object code
- iv) Interpreter
Translates source program line-by-line allowing the CPU to execute one line before translating the next.

d) Jokims retailers has two categories of customers processing category 'A' obtain 10% discount is 20% on entire order. Category 'B' obtain 30% on all orders if the debt payment records is good otherwise the discount is 115%. Write a pseudocode for the order processing (9mks)

1. Check the of loop used (2mks)

The pseudocode can use two looping structures.

- a.If –then-else
- b.Case structure

2. Confirm that loops used can be able to give out the desired results (4mks)

3. See that the candidate has used appropriate Amount and discount (2mks)

17.

a) Below are two tables structures of files in a database

Employee		Employee no	
Field	Data type	Field	Data type
Employee name	text	Employee no	Number
Employee number	Auto number	Data employed	Data/time
DOB	Date/ Time	Department	Text
Address	Text	Salary	Currency

- i) Which of the two tables is likely to be the parent table (1mk)
 1. Employee because it has employee infor.

 - ii) It is advisable to 'enforce referential integrity' when creating a relationship. What do you understanding by the term reverential integrity. (2mks)
 1. To ensure all records entered in the related table exists in the primary table.
 - iii) The field 'employee no' In the employee details table is likely to be the primary key what is a primary Key (2mks)
 1. Is a unique field that identify each record.
 - iv) Which fields in both tables is most appropriate for creating a relationship? (1mk)
 1. Employee number
 - v) What would make the relationship between the table fail to work (2mks)
 1. The data type is not similar
- b) In databases the field properties specify finer details related to the fields and the table entries expected. State FOUR field properties. (4mks)
1. input mark
 2. Validation Rule
 3. Required
 4. Indexed
- c) State THREE functions of a database (3mks)
1. To enhance security of data
 2. To share file between departments
 3. To reduce redundancy
 4. To enable updating and deleting of data
 5. In faster searching of data

18.

a) Consider the topologies demonstrated in the diagram below

i) Identify the network topologies (3mks)

A – Tree/ hierarchical

B – Ring topology

C – Mesh topology

ii) In topology A identify the network device that should be at the end points 1 and 2

Terminator

iii) Which of the above topologies is likely to be used in a wide area network (1mk)

Mesh

- iv) Highlight THREE disadvantages of topology B (3mks)
 - Modifying the topology is difficult
 - Troubleshooting is difficult
 - One device breakdown affects the whole system.
- v) Identify the device labeled X in topology A (1mk)
 - Hub
- b) State TWO main classes of network software (2mks)
 - a. Network protocol
 - b. Network operating system
- c) Briefly describe the following as used in networking (4mks)
 - i) Repeaters
A device that receives signal from one segment cleans it boosts it and sends it to another segment.
 - ii) Network hub
A device that connects computer onto the network.
 - iii) Fiber optic cables
Transmission medium that transmits data by using light
 - iv) Network interface card (NIC)
A device inside the system box for linking them onto the transmission medium

19.

- a) Define feasibility study as used in system (2mks)
 - The process of going out to the field to identify information that related to an organization.
- b) State four devices under direct control of the operation system (2mks)
 - 1. Main memory
 - 2. Input /output devices
 - 3. Processor
 - 4. Secondary storage
- c) Briefly describe the following types of computation errors (3mks)
 - i) Truncated
 - 1. Errors that results from having real numbers that have a long fractional part.
 - ii) Transposition
 - 1. Errors that result from incorrect reading of source document.
 - iii) Transcription
 - 1. Error s that occur during data entry.
- d) Explain THREE most commonly used coding schemes (3mks)
 - 1. ASCII (American standard code for information interchange)
 - 2. EBCDIC (Extended binary coded Decimal interchange code)
 - 3. BCD (Binary coded Decimal)
- e) Distinguish between online and real time processing (2mks)
 - Online – Data is processed immediately it is received.
 - Real time – The incoming data is processed as soon as it occurs
- f)
 - i) State one advantages and two disadvantages of command line interface (3mks)

Advantages

It is fast in processing commands as compared to GUI and menu driven interface

Disadvantages

1. It is difficult to the users because they need to memorize command
2. Single tasking and cannot support more than one task.

20.

a)

- i) Explain three communication services offered through internet (3marks)
 1. Chatting
 2. E-mails
 3. Video conferencing

- ii) Describe the following internet terms (2marks)

Links – A text or picture that when clicked causes other web pages to be opened.

URL – A special internet address made up of organization name and an extension explaining the type of organization and country.

- b) The following is a spreadsheet relating to a farmer.

	A	B	C
1	Crop	Amount	Not viable
2	Maize	150	Not viable
3	Bean	300	Not viable
4	Cashew nuts	850	Moderate
5	Cabbages	1036	viable

- i) a function =IF(B2<200 “Not Viable”), IF(B2>300,” Moderate”), IF (B2>1000, “Viable”)). Give the appropriate result returned in cells C2, C3, C4 and C5 (2 marks)

- c) Text can easily be selected using a mouse in word processing. How do you select

- i) Multiple paragraph

1. Triple click (2mks)

- ii) Vertical block of text

1. Hold down Ctrl as you drag the mouse pointer

- d) Distinguish between (2mks)

- i) A window and an orphan in word processing

A window is a heading without the appropriate body part while an orphan is the body without the heading.

- ii) Cut and copy commands

Cut – Move or transfer text of files from the original location to another location without leaving a copy

Copy – Duplication of text or files i.e. a file retains its original location and appears in another location.

- e) Give one purpose of drop caps on a text paragraph (1mk)

1. To emphasize the beginning of a paragraph

f)

- i) What is an expert system (1mk)

A system developed and installed in the office of human expert.

- ii) Give two application of expert systems (2mks)

1. Hospitals
2. Education

3. Other scientific departments.