KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

STRATHMORE HIGH SCHOOL

COMPUTER STUDIES

PAPER 1

MARKING SCHEME

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STRATHMORE SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER

451/1 / PAPER 1

MARKING SCHEME.

SECTION A (40 marks)

1. **Define the following terms as used in computer.**
   a). **Firewalls** (1 mk)
   - It is a program or hardware or a combination of both that filters the information coming through the Internet into a computer.

   b). **Data encryption**. (1 mk)
   - It is the encoding of data during storage or transmission so that it cannot be understood by those who do not have encryption key.

2. **What is an embedded computer?** (2 mks)
   - It is a dedicated computer that is attached to a machine to perform a specific task i.e. special purpose computer used inside a device

3. a) **State and explain the three mouse techniques**. (3mks)
   - Clicking — It can be left/right clicking to take a cursor to a particular position or make selection while right clicking is display a menu to make a selection from
   - Double clicking — This is to open file/folder with quick succession using the left button of the mouse
   - Drag and drop — Take an object from one location to another by holding on the left button and release afterwards

   b) Give one reason why a computer is referred to as an electronic device (1mk)
   - It uses electrical signals to process data
   - It is made up of electronic components and uses electric energy to operate

4. List four fields which would be expected in a database file of information about students in a school. (2mks)
   Name
   Admn. No.
   Class
   House/dormitory,
   Stream
   Gender/sex

5. State three changeover strategies that can be used to move from the old system to a new one. (3mks)
   - Straight changeover
   - Parallel changeover
   - Phased changeover

6. What is the meaning of the following as used in word-processing: (2 mks)
   a) Word wrap
   Automatically move to the next line of a word that does not fit at the end of a line thus avoiding breaking up of words
   b) Drop caps
   A feature used to enlarge the first letter of a paragraph so that it drops to cover 2 to more lines in the paragraph.

7. Explain the meaning of legends as used in Excel. (1 mk)
   - This is a key which explains the colour used in charts what it means.

8. a) List any four examples of DTP software available in the market today. (2 mks)
   - Adobe PageMaker

- Corel Draw
- Microsoft Publisher
- Ventura

b) What is the difference between the pasteboard and printable area? (2 mks)

A paste board is a large blank area where you place text and any graphical objects for the purpose of rearranging them neatly before placing them on the printable area.

A printable area looks like a page surrounded by margins found on the pasteboard. Any text or object found / placed here will be printed out.

9. What is the difference between looping and selection? (2 mks)

- Looping executes the same block of code (module) again and again until a certain condition is fulfilled, while selection execution of a statement(s) depends on a condition that returns true/false Yes / No

10. Name the stage of program development cycle when: (2 mks)

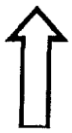
i) A user guide would be written Documentation
ii) A programmer dry-run the code. Testing and Debugging
iii) System charts would be drawn Program Design
iv) Staff training is done. Implementation

11. Name and explain the function of the following key symbols.

i) (2mks)

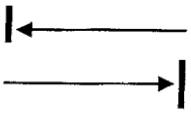
Enter - Used to execute commands
- Used to move the cursor insertion point to the next line

ii) (2mks)



Shift - Used to change lower case to uppercase characters and other keys with two symbols/letters.
- Used together with direction keys to select highlight characters or cells

iii) (2mks)



Tab — Used to move the cursor at intervals.

12. Explain four reasons which make microcomputers suitable for personal computing work (2mks)

- Reduced cost, i.e. are cheaper than the minicomputers & mainframe computers
- Have high processing speed
- Are small in size (occupy less office space)
- Are more energy efficient (i.e. consume less power)
- Are more reliable in doing various functions than the early mainframe computers
- Are versatile (i.e. can be used for many different tasks)

13. a) Explain the following terms as used in Ms Excel spread sheet package. (3mks)

a) Range

- A range is a rectangular arrangement of cells specified by the address of its top left and bottom right cells, separated by a colon(:) e.g. (Al: B8)

b) What if analysis

This involves changing the value of one of the arguments in a formula to see the difference the change would make on the result of the calculation

c) Automatic recalculation
This is a feature in electronic spreadsheet which automatically adjusts the result of a formula if the values in worksheet are changed

14. Explain the following computer crimes (2mks)

a). Fraud -use of computer to conceal information or cheating other people with the aim of getting money.

b). Alteration. - changing the data or information without permission with an aim of miss informing others

15. State and explain the three parts of a task bar. (3mks)

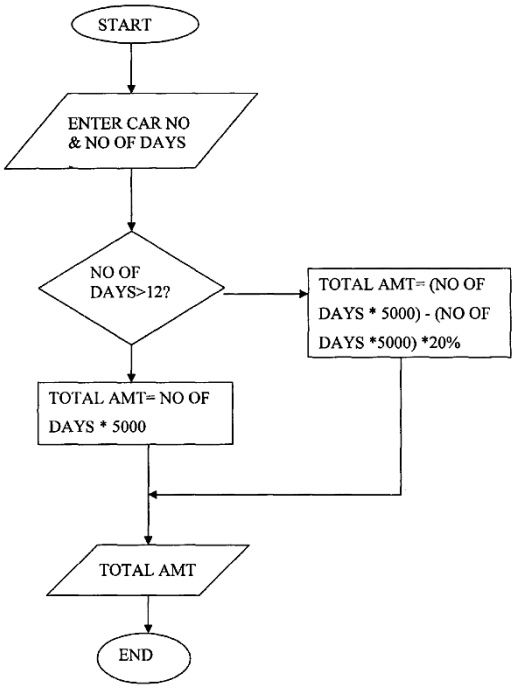
Start button - this is on the extreme left end with a word start together with a Microsoft logo- It is used to access programs as well as shut down the computer.
Task Manager - this is the middle part of the bar which displays any task / program that is running System tray- this is the right most part which bears the system clock

SECTION B: (60 marks)

16. a) Nakuru car rental firm leases its cars for Ksh.5000.00 per day. The managers give a Discount based on the number of days that the car is rented. If the rental period is greater than 12 days then a 20% discount is given. Write a pseudo-code to accept a car number and the rental period, and calculate the total amount earned by the company when a car is leased. (5mks)

```
START
    ENTER CAR NO
    ENTER NO OF DAYS
IF NO OF DAYS>12 THEN
TOTAL AMT= (NO OF DAYS * 5000) - (NO OF DAYS *5000) *20%
ELSE
TOTAL AMT= NO OF DAYS * 5000
END IF
END.
```

b) Use a flowchart to represent the above pseudo-code (5mks)



c) Identify three advantages of using modular programming in system development. (3mks)

- To enable program be developed in stages hence the programmer can concentrate on one task at a time
- It allows a large program to be written by several people hence saves time
- A single module can be used by different programs rather than creating same module in different programs.
- Modules can be tested individually hence easier to debug as they are short errors can be traced easily
- Program modification is easier since changes can be isolated within specific modules.

d) Why is observation sometimes disadvantageous when used in fact finding? State two reasons (2 mks)

- Likelihood of change of work performance in the people under study
- Faced by time limitation
- Limited by distance
- Standards may change due to break down of machines and one may get wrong impression.

17. a) State any two symptoms of the following computer work-related disorders and two methods of prevention.

i) Computer vision syndrome. (4 marks)

Symptoms

- Sore, tired, burning and itching or dry eyes
- Blurred or double vision
- Headache or sore neck
- Increased sensitivity to light

Prevention

- Take a break of 5 to 10 minutes
- Reduce glare and reflection from the computer screen
- Adjust the contrast and brightness of the screen
- Prevent eye strain by adjusting the sitting height
- Gentle message your eyes

ii) Repetitive strain injury. (4 mks)

Symptoms
- Numbness in the thumb or in fingers
- Extreme pain at the wrist
- Tingling in the finger

Prevention
- Take frequent breaks
- Position as the keyboard

b) Explain any two factors that should be considered during output design. (2mks)

The target audience or type of recipients
Frequency of report generation
Quality and format required

c) List six devices located under the cover of the system unit (3mks)
- Central processing Unit (CPU)
- Motherboard
- Power supply unit
- Main memory
- Hard disk
- Disk drives
- Battery
- Buses
- Input/ output ports
- Video card
- Expansion slots

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d) Differentiate between a compiler and an interpreter. (2 mks)

Complier	Interpreter

- Fast in translation	Relatively slow translate line by line
- Translate whole program at once	Translate line by line take less memory
Take up large memory space	Take less memory Every time program in run hence
-Saves time because Exe file is saved	Every time program is run hence consume time

18. (a) Identify and explain three areas where computers are used to process data (3 mks)

Supermarkets

- For stock control i.e. records of what is in store, what has been sold, and what is out of stock
- For calculating customer's change
- For production of receipts
- It can be used as a barcode reader

Banks

- Manage financial transactions through the use of special cash dispensing machines called ATMs used for cash deposit & withdrawal services
- Processing of cheques
- For preparation of payrolls
- Better record keeping & processing of documents
- Provide electronic money transfer facilities

Homes

- Entertainment e.g. watching movies, playing music, playing computer games
- For storing personal informational documents
- For calculating & keeping home budgets

Industries

- To monitor and control industries processes through the use of robots
- For management control, i.e. to keep track of elders, bills and transactions
- For advertisement purposes, which enable an industry to attack more customers

Police stations

- Matching, analyzing & keeping databases of fingerprints
- For taking photographs & other identification details
- For record keeping
- For face recognition, scene monitoring & analysis which help the police carry out criminal investigations speedily

Transport industry

- Airports; to control the movement of aircrafts, their take off & landing using radar equipment
- For making reservations (booking purposes)
- Storing flight information
- Automobile traffic control; to monitor vehicle traffic in busy towns
- In Railways corporations; to coordinate the movement of goods & wagons
- In shipping control, for efficient management of fleets, cargo handling & communication & Offices
- For receiving & sending of information through e- mails, fax, etc
- Production of documents
- Keeping of records
- And any other application areas

b) Computers have evolved through a number of generations. List any 4 characteristics of the first generation of computers. (2mks)

- Large in physical size
- Relied on thermionic valves/vacuum tubes to process and store data

- Consumed a lot of power
- Produced a lot of heat
- The computers constantly broke down due to the excessive heat generated; hence were short- lived, and were not very reliable
- Their internal memory capacity! size was low
- Processing speed was very slow
- Very costly
- Used magnetic drum memory

c) Differentiate between Cache and Buffer memories. (2mks)

Buffer - Control the speed difference between communicating device or Control the speed imbalance between two devices

Cache - It boost CPU processing speed because the CPU can access it much more quickly than RAM

d) State three advantages of wireless communication. (3 marks)

- Flexible in operation — one move around without losing access to the network
- Covers a large geographical area easily
- Covers remote areas where physical infrastructure like cables is expensive

e) Explain the following terms as used in data communication. (3 marks)

(i) Multiplexing - it is the process of sending multiple data signals over the same medium

(ii) Bandwidth - it is the maximum amount of data that a transmission medium can carry at any one time

(iii) Base band signal- it is a digital signal that is generated and applied to the transmission medium directly without modulation.

f) Explain the use of these communication devices. (2 marks)

i) Routers - It interconnect different network. It directs data efficiently towards its intended destination across a network

ii) Hub - It is a device in a network that transmit signals by broadcasting them to all the computers on the network. The computer whose address is on the message picks the message from the network that is part of the broadcast domain.

19. a) Describe the following careers in the computing field. (3mks)

i) Computer Engineer - This is a person who is skilled is designing and developing computer components such as storage devices and other electronic components

ii) Software Engineers - This is a person who is skilled in software development and technical operation of a computer hardware.

iii) Computer technician - This are skilled persons who maintain, upgrade and repair computers to ensure that all the devices are in good working condition

(b) (i) Give any four advantages of using a fibre optic cable in data transmission (4 mks)

- Cannot be affected by electromagnetic interference
- Offers fast transmission rates than other media
- Supports high bandwidth or can transmit large volume of data at once
- Less prone to transmission impairments or has low attention
- Eaves dropping is difficult to be done
- Takes limited or less space (ii) Name two types of fibre optic. (1 mark)
- Single mode
- Multi mode

c) State the use of the following devices (2 mks)

(i) Light pen

- It is used to make selections in CAD

- It is also used to draw objects from shapes that appear as icons on screen

(ii) Graphics tablet.

- They are used to trace or draw highly detailed engineering and architectural drawings and designs.

d) Name any two advantages of solid-state memories over other storage media. (2mks)

- Does not require a drive to read or write to them
- Light

e) List four factors to be considered when choosing an electronic data processing method. (4 mks)

- Type and size of business
- Timing aspects of the information produced.
- Link between applications.
- Volume of data records held in the organization.
- Cost of acquiring the relevant hardware, software, storage media, etc & the cost of maintenance

20. a) List and explain the functions of computer buses. (3mks)

- Data bus — Carries data to and from the CPU i.e. pathway where the actual data transfer takes place
- Address bus - Used to locate the storage position in memory where the next instruction or data to be processed is held.
- Control bus - It is the pathway for all timing and controlling functions sent by the control unit to other parts of the system.

b) The formula = $B2 + C$4 is entered in cell C5 and then copied to DI0. Write down the formula as it appears in the destination cell. (2 mks)

= $B7 +D$4

c) Give two reasons why smaller computers like Laptops tend to be more expensive than Desktop computers (2 mks)

- The technology of producing smaller devices is expensive
- They are convenient because they are portable
- They have advanced power management capabilities (they consume less power since a laptop can operate on rechargeable batteries

d) Giving an example, name three categories of post secondary institutions where one can advance computer skills after sitting for K.C.S.E. (3 mks)

i) Universities — Kenyatta, Nairobi, JKUAT, Egerton Universities

ii) Polytechnics — Kenya, Mombasa, Eldoret, Kisumu polytechnic

iii) Colleges — Institutes e.g. public and private colleges

e) List four examples of

i) Third generation languages. (2mks)

- Pascal
- BASIC
- FORTRAN
- COBOL

ii) Object oriented languages. (2mks)

- Simula
- Java
- Small Talk
- C^{++}

f) Define the term ergonomics (1 mark)

- It is a science that determines the best working condition for humans who work with machines