
**KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS**

**ALLIANCE BOYS HIGH SCHOOL
COMPUTER STUDIES
PAPER 1
MARKING SCHEME**

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ALLIANCE BOYS HIGH SCHOOL

COMPUTER STUDIES

PAPER I

MARKING SCHEME

1. (a) Purpose of registers in a computer systems.
To temporarily hold data that is waiting to be processed or after processing. 1 mk
(b) Types of register found in the central processing unit.
 - Addressing register
 - Storage register 1 mk
2. Computer room should be well lit to avoid eye strain
 - avoid over bright wall paints that reflect too much light causing eye strain
 - adjust brightness of the computer monitor until the eyes feel comfortable before using the computer
 - use/fit the monitor with radiation filter screens
 - avoid using flickering monitor
 - seat for the user must be comfortable and have a straight backrest that allows someone to sit upright
 - take frequent breaks while working with a computer
3. (a)—creation
 - Transmission
 - Preparation
 - Media conversion
 - input validation
 - sorting
4. (a) Importance of internet to society
 - Enhances commerce
 - improved communication 2mks

(b) Challenges that internet has brought to society

 - Individual privacy cannot be guaranteed
 - Moral and cultural issues have been greatly affected
 - Security as a lot of information can be accessed from the internet. 2mks
5. (a) portability refers to whether a program can be copied or installed in more than one computer
(b)
 - in-house developed programs
 - Venue at the-Shelf software purchase through a vendor
 - Open source
6. (a) 10100_2 (b) $1\ 100.001_2$ (c) 326.448
7. Outline two major functions of UPS in computer laboratory. (2 marks)
 - (i) it regulates power voltages by eliminating surges and brownouts
 - (ii) it temporarily provides power to the computer in case of a sudden power failure so the user can save his work and shut down the computer
8. (a) Define virtual reality. (1 mark)
 - it is the use of computer to visualize, manipulate and interact with complex data. ORX-refers to a condition in which a person becomes psychologically immersed in an artificial environment using computers

(b) List any two applications of virtual reality.

 - Video mapping
 - immersive systems

- Telepresence
- 9. (a) - One — to — one
- One—to—many
- Many—to—many
- (b) -relationship based on primary and foreign keys
- a feature that governs the nature of records in a one — to — many relationship between tables in database
- 10. **Differentiate between SRAM**
 - Faster in access of data by CPU.
 - Larger in size
 - Expensive
 - Don't require refreshment**SDRAM**
 - Slower in access
 - Smaller in size
 - Cheaper requires constant refreshment
 - Requires constant refreshment
- (b) Reason why processor of micro computers is referred to as micro processor
 - It is a small/tine clip put into a silicon clip.
- 11. Advantages and disadvantages of impact over non impact printers

Advantages

 - Cheap to buy
 - Hardy

Disadvantages

 - Slow
 - Make a lot of noise
 - Low quality printouts
- 12. Advantages of USB port over the parallel port
 - Faster data transfer rate
 - Supports multiple devices
- 13. - PORTTRAN - for scientific and mathematical programs
- PASCAL - Teaching structured programming
- COBOL - Developing business oriented programs
- ADA — Developing real time and industrial systems
- 14. (a) Logical file is what data items and processing operation may be performed while physical file is how data is stored and how it is to be processed.
- (b)
 - Master
 - Transaction
 - Back up
 - Reference
 - Report
 - Sort
- 15. a). — A process of generating personalized letter / documents by e.g letter with an existing data source such as address book.
- b).
 - Primary file (main document)
 - Secondary tile (data soure)
 - Merged tile (data source)

SECTION B. (60 MARKS)

16. (a) What would the flow chart generate as output if the value of N at input was:

(i) 6?

N	M	N	F	M	F
6	1	1	1	4	24
	2		2	5	120
	3		6	6	720

2mks

(ii) 1?

N	M	F	F
1	1	1	1

2mks

(b) Pseudocode that does the same thing as the flow chart above

Start

Read N

Initialize

M to 1

F to 1

Calculate $F = F \times M$

IF $M = N$ Then

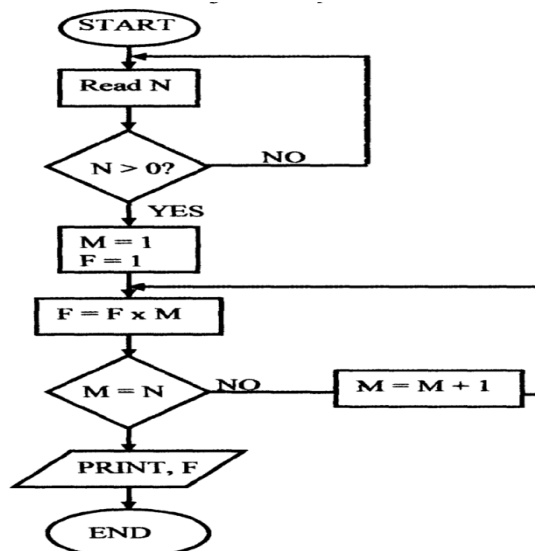
Print, F

Else $M = M + 1$

End IF

Stop

(c) Modify the flow chart so as to reject an input below 0 and to avoid the looping when the input is 0 (4mks)



17. (a) State any three duties of the following ICT personnels.

(i) Systems analyst.

- hold discussions with manager and users of the system to determine their exact needs
- gather facts about the system in question
- make recommendations for the procurement of hardware and software if necessary
- test and debug the new system
- assist in training employees to use the new system
- evaluate the performance of the system
- design system

any3 1x3

- (ii) Database administrator. (3 marks)
 - ensure the data base performance is optimum
 - develop policies and procedure to ensure the security and integrity of the system
 - Co-ordinates data collection and storage
 - meet with users to make modifications to the database
 - Co-ordinate the database design
 - select database system for the company
 - maintains the database system
 - (iii) Web master (3 marks)
 - ensure the site contains the required information
 - ensure that all the links on the site work and site is easy to navigate
 - develop a web pages
 - post new content to the website I update the web site content
 - (b) Name any three ICI courses offered m the Kenyan universities. (3 marks)
 - Computer science
 - Information technology IT
 - Computer engineering
 - Software engineering
 - (c) Outline three advantages of telecommuting. (3 marks)
 - cuts traveling cost
 - It saves time because no traveling involved
 - Productivity ma increase
 - Less distraction from co-workers
 - No need to hire large office hence low rent
18. (a) The formula = K20 + P & 18 was typed in cell L21 and then copied to cell M24 of spreadsheet. Write the formula as it appears in M24
L23 +P& 1S2mks
- (b) Spreadsheet is a collection of sheets made up of rows and columns on which numerical data is entered and manipulated. 1mk
- (ii) Examples of spreadsheet packages
- MS excel
 - Corel Quattro pro
 - Lotusl-2-3
 - Open office calc. 2mks
- (iii) Explanation of the following terms in spreadsheet
- 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. 1mk
- Cell — Intersection between a row and a column. 1 mk
- Formula — User defined expression that creates a relationship between cells to return a new value. 1mk
- Pie — chart— Graphical representation/ displays the contribution of each value to a grand total. 1mk
- (c) Distinguish between the following
- (i) Worksheet and workbook
 - Worksheet is a collection of rows and columns where data is entered.
 - Workbook is a collection of worksheets. 2mks
 - (ii) Filtering and sorting
 - Filtering is selecting data in a worksheet based on a criteria. Sorting is arranging data in certain order. 2mks
- (d) Way in which user may reverse the last action taken in a spreadsheet package.
- Undo command

19. (a) Define artificial Intelligence. (1 mark)

- refers to the ability of a computer to mimic capabilities
- it is the branch of computer science that is concerned with the development of machine that emulate human — like qualities such as learning, reasoning, communicating the science of attempting to develop machine that mimic human behaviours

(b) Explain the application of artificial intelligence in the following areas. (6 marks)

(i) Natural language processing

- have been used to produce voice recognition and synthesis system

(ii) Robotics

- AI have been used to control robot
- AI have been used to construct robots
- Computers are used to control machines in the place of man. E.g. welding, spraying, loading

(iii) Expert systems

- AI have been used to produce
- expert systems that can be used in research, medical diagnosis etc

(b) Give any three symptoms of the following computer work-related disorders and two of their 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 massage your eyes

(ii) Repetitive strain injury. (4 marks)

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

20. (a) Define the term ergonomics (1 mark)

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

(b) (i) Give any three advantages of using a fibre optic cable in data transmission (3marks)

- cannot be affected by electromagnetic interference
- offer 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 attenuation
- 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 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
- (d) Explain the following terms. (3 marks)
 - (i) Multiplexing
 - it is the process of sending multiple data signals over the same medium (Give mark if diagram exist)
 - (ii) Bandwidth
 - it is the maximum amount of data that a transmission medium can carry at any one time
 - (iii) Baseband signal
 - it is a digital signal that is generated and applied to the transmission medium directly without modulation.
- (e) Explain the use of these communication devices. (4 marks)
 - (i) Routers
 - it interconnect different network. It directs data efficiently towards its intended destination a cross a network
 - (ii) Hub
 - is a component or 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.