**MARKING GUIDE**

**840/1**

**COMPUTER STUDIES**

**Paper 1**

**July 2019**

**2 hours 30 minutes**

**EQUATORIAL COLLEGE IBANDA**

**S.4 Set Nine Pre-mock Examinations 2019**

**COMPUTER STUDIES**

**Paper 1**

2 hours 30 minutes

**INSTRUCTIONS TO CANDIDATES:**

*Write your first name, second name, signature, sex, and either* ***4J*** *or* ***4K*** *in the spaces above.*

*This paper consists of* **three** *sections,* **A, B** and **C.**

*Section* **A** *contains* **20 compulsory** *objective-type questions. The correct alternative* **A, B, C** *or* **D** *must be written in the box provided on the right hand side of each question. Totaling to20 marks.*

*Section* **B** *contains* **six compulsory** *structured questions*. *Each question takes 10 marks totaling to 60 marks*

*Answers to section* **B must** *be written in the spaces provided in the question paper.*

*Section* **C** *contains* **three** *essay type questions. Answer only* **one** *question that takes 20 marks*.

*Answers to section* **C** *must be written in the answer sheet attached.*

**For Examiners’ Use only**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **MCQ** | **Q21** | **Q22** | **Q23** | **Q24** | **Q25** | **Q26** | **Section C** | **TOTAL** | **Grade** |
|  |  |  |  |  |  |  |  |  |  |

**SECTION A (20 MARKS)**

1. Which of these best characterizes the mechanical era (1623-1945) computer evolution?
2. Napier’s bones

**C**

1. Programming languages
2. Leibniz calculator
3. Multics
4. What is the most appropriate file extension name for an image file?
5. .html
6. .gif

**B**

1. .ppt
2. .mpe
3. Recordings on a cheque can be best read by ………………………………………….
4. Optical mark Reader
5. Optical character Reader

**D**

1. Magnetic Tape Reader
2. Magnetic Ink character Reader
3. Punching information into the database form is termed as ……………………………
4. Data entering
5. Data capture

**B**

1. Key boarding
2. Typing
3. The following are examples of mechanical computers except
4. Pascal’s arithmetic machine

**C**

1. Leibnitz stepped Reckoner
2. Babbage’s analytical engine
3. Slide rule
4. The best way to increase the speed of a laser printer is …………………………………
5. Flash ROM upgrade
6. Memory upgrade

**D**

1. Optional paper try
2. Install a maintenance
3. Which of the following refers to software built in a computer’s motherboard?
4. Drivers

**B**

1. BIOS
2. Firm ware
3. CMOS
4. An example of a(n) ……………………is an Uninstaller which removes a program that has been installed on a computer.
5. Operating system

**A**

1. User interface
2. Application
3. Utility program.
4. Which of the following is not a typical programming language?
5. Html
6. COBOL

**A**

1. C++
2. Java
3. Specifying a field data type enables you to …………………………………………
4. Set limits to the value entered in a field

**B**

1. Control the type of information in the field
2. Speed up data entry
3. Allows automatic entry
4. Which of the following technologies are used for short-range communication connection to a wireless mobile phone and laptop?
5. Cellular
6. Ethernet

**D**

1. Fire wire
2. Bluetooth
3. When you type a figure in a spreadsheet cell and display 6.6e43, it means ………………
4. The cell is not active
5. The function has been mispelt

**C**

1. The columns cannot accommodate the value
2. You must calculate the formula
3. Which of the following has the fastest speed of transferring data?
4. Fiber optic
5. Coaxial cable

**A**

1. Twisted pair
2. Un twisted pair
3. The asterisk software (\*) in DOS is called a (n) ……………………………………….
4. Extension
5. Wildcard

**B**

1. Filename
2. Substitute
3. In computer studies and information technology, a bug is an …………………………...
4. Data bug damager
5. Programming error

**B**

1. Malicious program
2. Syntax error
3. If you wanted to “window shop” on the internet, you would visit a ……………………..
4. Chart group
5. Gopher

**D**

1. telnet
2. cyber café’
3. What is the function “packs and Go wizard”?
4. Packs and goes with the wizard

**D**

1. Wizard to magic with packing
2. Acts as an emergency accessory
3. Loads on a storage media the necessary requirements to enable electronic slide show run at any destination.
4. With a local area network. Which two terms must be unique on a computer for it to successfully connect to the network?
5. IP address and computer name
6. Subnet mask and default gateway address

**A**

1. Modem and hubs
2. Routers and Repeaters
3. The points of connection between a computer (motherboard) and its peripherals are called………………………………
4. Network cards

**B**

1. Ports
2. Cables
3. Sockets
4. The kind of software ready for use on the computers just after purchase is known as.
5. Application software

**A**

1. Customized software
2. Justified software
3. Off the shelf software

**SECTION B: (60 MARKS)**

**Attempt all questions in this section**

1. (a) With **two** examples of each, define the **two** categories of **software**. (02 marks)

**System software are programs that performs a variety of fundamental operations that avail computer resources to the user**

**Application software are programs that perform specific tasks as requested by the user.**

(02 marks)

|  |  |
| --- | --- |
| **Examples of category 1** | **Examples of category 2** |
| **1.operating system, firm ware** | **1.customized packages** |
| **2.networking, utility, programming** | **2.off-the shelf packages** |

(b) Define the following terms.

(i) **Share ware**  (01 mark)

**It is a software that is available free to try but if kept, the user is expected to pay a fee to the writer.eg Antivirus software.**

(ii) **Open source** (01 mark)

**It refers to software whose source of code (programmed set of instructions) is freely made available to users.eg News papers.**

(iii) **Free ware**  (01 mark)

**These are software products that are freely made available to the user.eg Games like Solitaire, Dave and Antivirus**

(iv) **Public domain software** (01 mark)

**These are free software donated for public use with no copy right restrictions.eg parliament News, News papers.**

(c) Differentiate between **USB** and **Plug** and **Play**. (02 marks)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. (a) Define the term **computer Generation**. (01 mark)

**This is the period when computers changed from simple technology to advanced.**

(b) Give **five** differences between **Digital** and **Analog** computers. (05 marks)

**Digital is discrete in nature while analog is continuous in nature.**

**Digital is represented binary form while analog is represented fours.**

**Digital is easy to learn and use while analog is complicated and need specialists.**

**Digital is cheap while analog is expensive.**

(c) Write the following abbreviations in full.

(i) **EBCDIC** (01 mark)

**Extended Binary Code Decimal Interchange Code**

(ii) **APT** (01 mark)

**Automatic Programmed Tools**

(d) (i) What is a **punched card**? (01 mark)

**It is a device that was used by the first generation computers to input and output data**

(ii) Give another name given to year when the **second generations** of computers were invented **Year of Transis(tor)**  (01 mark)

1. (a) Define the term **packet switch**. (01 mark)

**This is a data transmission method whereby data is transmitted in packets through a network to a remote location.**

(b) List **three** communication media. (03 marks)

**Wire base communication media**

**Wireless base communication media**

**Microwave form communication media**

(c) Distinguish between **downloading** and **uploading**. (01 mark)

**Downloading refers to the retrieval of files from another computer and store them on your computer on a network while uploading refers to the sending of files from your computer to another computer on a network.**

(d) An e-mail address is given as [**ariho@yahoo.com**](mailto:ariho@yahoo.com). Identify each part of this e-mail address.

(i) **ariho** (1/2 marks)

**It is the user name**

(ii) **@** (1/2 marks)

**It is a symbol signifying at**

(iii) **yahoo** (1/2 marks)

**It is the domain name**

(iv) **.com** (1/2 marks)

**It is the domain**

(e) Give **one** function of the following in data communication.

(i) **Repeater** (01 mark)

**It receives signals from one segment of a network, cleans any distortion, boosts and sends it to another segment.**

(ii) **Router** (01 mark)

**It interconnects different networks and transfers data packets on a network.**

(iii) **Gateway** (01 mark)

**It is any device that can be configured to provide access to wide area networks or internet**

1. (a) What is a **computer network**? (01 mark)

**It is a collection of computers and other hardware linked together for purposes of communication and resource sharing.**

(b) Explain the following terms as used with e-mail message.

(i) **Login** (1/2 marks)

**It is the process of opening an e-mail account by entering the username and passward.**

(ii) **Compose** (1/2 marks)

**It is the creating of an e-mail message in form of text (line of text)**

(iii) **Inbox** (1/2 marks)

**It is where sent messages are stored or kept.**

**(iv) Forward (1/2 marks)**

**It is replying /sending of the message**

(c) Outline any **three** disadvantages of an e-mail message. (11/2 marks)

**It is expensive as it requires use of a computer**

**One is not able to get immediate reply when he/she is not active at that time**

**The message can be accessed by hackers since it can send to many**

(d) state:

(i) **three** advantages of using Internet. (03 marks)

**Enhancement of communication**

**Access to information world wide**

**Shop for goods and services**

**Provide information to the public**

(ii) **two** disadvantages of using Internet. (02 marks)

**There is no privacy of information**

**Information control is limited**

**Illegal material is in plenty**

**Piracy**

1. (a) (i) What is a **spreadsheet**. (01 mark)

**It is an essentially ledger sheet that lets you enter edit and manipulation out numerical data values.**

(ii) Give **three** examples of spreadsheets programs. (11/2 marks)

**Microsoft Excel**

**Lotus 1-2-3**

**Quattro pro**

**Super Calc**

(b) Explain the following terms in spreadsheet

(i) **Values** (01 mark)

**This is any data that can be evaluated numerically, including numbers,dates and mathematical formulas.**

**These are numbers that can be manipulated mathematically. (0-9), (sysmbols)**

(ii) **Labels** (01 mark)

**This is a string of characters (alphabetical data) generally used for descriptive text such as titles, column headings.**

**Any text or alphanumerical characters in a cell are viewed as labels by the spreadsheet program. Eg (Name)**

(c) Name **three** different operations, which you would expect in a spreadsheet cell. (11/2 marks)

**( ) Parentheses**

**\* multiplication**

**/ division**

**+ addition**

**- subtraction**

**% percentage**

**^ exponential**

(d) State any **four** application areas of spreadsheets. (04 marks)

**Statistical analysis**

**Accounting**

**Data management**

**Forecasting (what if analysis**

1. (a) (i) What is **word processing** ? (01 mark)

**This is the process of creating, editing saving, printing, formatting and pasting nice looking documents which contains graphics and text.**

**Word processing means using information technology to produce text such as letters and reports.**

**Word processing refers to the process of entering and manipulating a document using a computer and computer programs**

**Word processing software can be defined as a program for editing, formatting and printing text**

(ii) Mention **four** examples of word processing software. (02 marks)

**Microsoft word**

**Word pad**

**Word perfect**

**Word star**

**Corel word perfect**

**Perfect writer**

**Easy writer**

**PC writer**

**Multi mate**

**Word pro**

**Abi word**

**Open office.org writer**

**La Tex editor**

**Lyx**

**Professional writer**

**Manuscript**

**Ami pro**

**Locum script**

**Finger prints**

(b) State the key board short cut key combination for executing the following commands during word processing.

(i) **Double underline CTRL+SHIFT+D** (1/2 marks)

(ii) **Increase font size CTRL+SHIFT+P** (1/2 marks)

(iii) **Apply a bulleted list CTRL+SHIFT+L** (1/2 marks)

(iv) **Close the file ALT+F4** (1/2 marks)

(c) Outline any **five** objects used in Microsoft Access. (21/2 marks)

**Tables**

**Queries**

**Forms**

**Reports**

**Pages**

**Macros**

**modules**

(d) Given the file path **C:/user/desktop/Abu/Letter.doc**. Identify the following.

(21/2 marks)

1. **Filename letter**
2. **File type .doc**
3. **Profile User**
4. **Folder Abu**
5. **Location Desktop**

**SECTION C: 20 MARKS**

**Attempt any one question from this section**

1. (a) A user wishes to buy a laptop computer. Describe ten specifications to consider when buying the laptop. ***(10 marks)***

* CPU specifications e.g type and speed
* Provisions for a local disc and local disk specifications e.g type, disc space
* RAM size or capacity
* The brand
* Generation
* Nature of operating system
* Networking capabilities
* Nature of the monitor and specifications (Size, touch capability, VGA card specifications)
* Nature and number of ports
* Provision and number of pointing devices
* Laptop color
* Provision for data capture
* Laptop size
* Removable drives/storage capabilities
* Battery life
* Documentation
* Safety and security

(b) Draw a **sketch** of a QWERTY key board and include the following keys

* Enter
* Tab
* Caps lock
* All functional keys
* Space bar ***(10 marks)***



1. (a) With the use of **illustrations** explain the data transmission modes. ***(05 marks)***

* A duplex communication system is a point-to-point system composed of two connected parties or devices that can communicate with one another in both directions. **An** **example of a duplex device is a telephone.**
* A full-duplex (FDX) system, sometimes called double-duplex, allows communication in both directions simultaneously. **E.g. Land-line and Cell telephone networks** are full-duplex, since they allow both callers to speak and be heard at the same time.
* A half-duplex (HDX) system provides communication in both directions, but only one direction at a time (not simultaneously). Once a party begins receiving a signal, it must wait for the transmitter to stop transmitting, before replying (antennas are of trans-receiver type in these devices, so as to transmit and receive the signal as well). **An example of a half-duplex system is a two-party system such as a walkie-talkie.**
* Simplex is a communication that occurs in only one direction. **For example, Radio and Television broadcast, communication between a mouse and computer**

(b) Assuming you have secured a contract of networking computers in a computer laboratory, sketch and explain five possible network layouts you can present to the contractor for approval with convincing facts. ***(15 marks)***

**Bus or linear topology**

A topology in which each node is connected in series along a single conduit or main cable called a bus.

A sketch diagram of a bus topology

Workstation

Terminator



Printer

Backbone cable

**Star topology**

A topology in which all the nodes are connected to a central hub. Each node has an equal right of transmission of data.

A sketch diagram of a star topology



Printer



Workstation



Hub/Concentrator/Server/Switch

**Ring Layout/topology**

A ring topology is a network layout in which each node has exactly two neighbours connected to it for communication purposes. For each node to communicate, it must make a request for a token be able to send a signal along the path.

A sketch diagram of a ring topology



Workstation

Cable

**Mesh network layout/topology**

A network topology in which at least each node has two or more paths between them.

A sketch diagram of a mesh topology



Workstation

Cable

**Any 4 x 5 = 20 marks**

**Mentioning = 1 mark**

**Sketch diagram = 1 mark**

**Labeling = 1 mark**

**Explanation = 2 marks**

**Total = 5 marks per topology**

* **Extended Star/Tree/Hybrid topology**
* It’s a combination of two or more topology
* The same network topology to be distributed in different segiments
* It’s the extended star Or a combination of two or more star topology   
  Or. it’s a combination of two or more topologies

1. (a) With the help of examples define the term software testing. ***(06 marks)***

**Testing** is the process of running computer software to detect/find any errors (or bugs) in the program that might have gone unnoticed.

During program testing, the following details should be checked;

* + - The reports generated by the system.
    - The files maintained in connection to the system’s information requirements.
    - The input to the system.
    - The processing tasks.
    - The controls incorporated within the system.

For the program to be assumed as correct, several testing needs to be conducted by the programmer to ascertain/establish their validity.

There are several methods of testing a program for errors. These include:

1. Dry running (Desk checking).
2. Translator system checking.
3. Functional testing.
4. Use of Test data.
5. Use of debugging utilities.
6. Diagnostic procedures.
7. System test with actual data.

(b) Mutuku took a loan of Ugx. 400,000 from a local bank at an interest rate of 10% payable in four years. Assuming you wish to develop a computer program that will keep track of monthly repayments:

1. Identify the input, processing and output requirements for such a program. ***(04 marks)***
2. Design the algorithm for the program using a simple flowchart and pseudocode.  ***(10 marks)***
   1. **Requirements**:

**Input**  - Initial amount borrowed

- Interest rate

- Number of years

**Processing** - equation to calculate Yearly repayments and Monthly **repayments**.

**Output**  - Monthly repayments calculated by the process

* 1. **Pseudocode:**

START

INPUT Initial amount borrowed

INPUT Interest rate

INPUT Number of years

Calculate Yearly repayments

Monthly repayments = (Yearly repayments / 12)

OUTPUT Monthly repayments

STOP;

**Flowchart:**

PRINT Monthly repayments

ENTER Initial amount, Interest rate, number of Years

Calculate Yearly repayments & Monthly repayments

**END**

**STRUGGLE FOR A BRIGHT FUTURE**