**MARKING GUIDE**

**FOR PRE MOCK SET EIGHT**

**840/1**

**COMPUTER STUDIES**

**Paper 1**

**June 2019**

21*/*2 hours

**EQUATORIAL COLLEGE IBANDA**

**Uganda Certificate of Education**

**COMPUTER STUDIES**

**Paper 1**

2 hours 30 minutes

**INSTRUCTIONS TO CANDIDATES:**

*Write your signature, Random number, Name and subject code in the spaces provided 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.*

*Section* **B** *contains* **six compulsory** *structured questions*. *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**. *Answers to section* **C** *must be written in the answer sheet provided.*

*Any additional question(s) answered will* **not** *be marked.*

**For Examiners’ Use only**

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

**SECTION A (20 MARKS)**

1. To connect a computer to a network, a user’s machine should have a (n).
2. NIC
3. RJ45

**B**

1. IP
2. ISP
3. The ability of a computer to automatically configure peripheral devices is known as ………………………
4. Supervision
5. Drivers

**D**

1. Registering
2. Plug and play
3. When system peripherals stop working suddenly, computer users can be advised to start by ………………..
4. Identifying the cause of the fault
5. Buying a new peripheral device

**A**

**A**

1. Changing the version of the peripheral
2. Going to another computer
3. Which of the following program development stage is for starting to develop a program to solve user’s needs?
4. Need identification
5. Problem coding
6. Program design
7. Program testing
8. System device configurations checked during the booting process are generally kept in the?
9. RAM
10. BIOS

**C**

1. CMOS
2. POST

**Turn Over**

1. Which of the following computer generations represents the invention of the operating system?
2. First generation
3. Second generation

**D**

1. Fourth generation
2. Third generation
3. A real system development process contains
4. System analysis
5. System design
6. Testing
7. Coding
8. (i) only
9. (i) and (ii) only

**D**

1. (ii) and (iv) only
2. (i), (ii) and (iv)
3. Which of the following components is an element of the central processing unit?
4. CMOS
5. RAM

**C**

1. Accumulators
2. Pixels
3. The program that loads operating system into memory during computer system start-up is……………………..
4. DOS
5. Boot strap

**B**

1. BIOS
2. POST

**Turn Over**

1. Which one of the following practices would slow down the speed of the computer system?
2. Increasing the amount of RAM

**B**

1. Running several software applications at the same time
2. Using a smaller screen or monitor
3. Using a very small mouse
4. In computer studies troubleshooting refers to a form of
5. Problem solving
6. Data security measures

**A**

1. Protecting the computer
2. Crime preventing
3. A local area network that uses World Wide Web standards transmissions, uploads and downloads is referred to as………………………..
4. Extranet network
5. Closed network

**C**

1. Intranet network
2. SOHO network
3. Which of the following statements is correct about mail merge feature of word processors?
4. It is used to develop multiple copies of the same letter for different recipients
5. It is used to send multiple copies of the same letter to different recipients.
6. It is used to import multiple copies of the same letter

**A**

1. It is used to export multiple copies of the same letter
2. In program coding a term used to represent one or several variables, operators, constants, or values is referred to as?
3. An expression
4. A source code

**A**

1. A statement
2. A function

**Turn Over**

1. At what stage of programming is the programmer involved in checking for the code errors for correction?
2. Program debugging and testing stage
3. Program coding stage

**A**

1. Program Analysis stage
2. Program correcting and clearing stage
3. Computer ethics would best be described by …………………………...
4. Being polite on line
5. Trade names

**A**

1. Trade marks
2. Copyrights
3. A ……………… is a preliminary working version of a software product for demonstration and evaluation by end users.
4. Version
5. Release

**C**

1. Prototype
2. System life cycle
3. Which one of the following wild card is used to represent any string of text from nothing up to an entire paragraph or more?
4. Asterisk (\*)
5. Double asterisk (\*\*)

**A**

1. Question Mark (?)
2. Two question marks (??)
3. Which of the following hardware devices is an input component?
4. Monitor
5. CPU

**C**

1. Keyboard
2. CD ROM

**Turn Over**

1. Which of the following is correct about electronic spreadsheets?
2. One can perform calculations in spreadsheets.
3. One can create a letter using a spreadsheet.

**A**

1. A student can type an essay using a spreadsheet.
2. A student can download information using spreadsheets.

**SECTION B (60 MARKS)**

Answer all questions in this section. All the working must be done in the space provided.

1. (a) Define the phrase of “**computer generations**” (2 marks)

Computer generations relate to advancement of computer technology over years.

**OR** the technological advancement of computers from simple to advanced

b) Give **two** reasons to support the study of the history of computers. (2 marks)

To enhance learners invention and innovative skills

For learners to appreciate current innovations in computers

(C) If a DVD has a capacity of 21GB. How many CD-Rs of 650MB would be required to store information on the DVD? (3 Marks)

1000MB = 1GB

650MB = 650/1000 = 0.65

21GB = 21/0.65 =32.307…….

**= 32CD-Rs**

1. (a) Briefly explain the following technologies used in data storage and information.
2. **Optical technology** (2 marks)

Technology that uses laser light beams for data writing and reading from the

Storage media

1. **Solid state technology** (2 marks)

Storage media that does not spin for data reading and writing

**Turn Over**

(b) Give **two** uses of a mouse on a computer system. (2 marks)

- Points - Can draw shapes and objects

- Selects and confirms operations - Moves text and objects – Play games

(c) Give **four** stages involved in the booting process of a computer (4 marks)

- Powering the PC

- Accessing bootstrap loader

- POST

- Loading O.S into memory

- Account logon and Pass wording

1. (a) Give **three** arithmetic functions found in electronic spread sheets (6 marks)

* Sum - Average
* Product - Power

- If - SQRT

(b) Give **two** examples of electronic database software. (2 marks)

Dbase III and IV MS Access

Oracle MYSQL

(c) Give **two** uses of query objects created in electronic databases. (2 marks)

Locate specific record with in the table For calculations

Extract records that meet specific selection criteria

1. (a) In relation to computer communication and networks, explain the meaning of the following terms
2. **Server** (2 marks)

A software that manages clients requests or a specialized computer with the ability

(server software) to manage other resources on a network.

1. **Client**

A network resource being controlled by a server.

**Turn Over**

(b) (i) State **three** advantages of depending on computer networks (3 marks)

Data and information security is enhanced more so with client-server net models

Administration costs are reduced by sharing resources and elimination of some staff

Communication is faster and decision making – brings unity through sharing

(ii) Write the acronym **MODEM** in full (1 mark)

Modulator Demodulator

(iii) Give **two** advantages a school would enjoy having a website (2 marks)

Facilitates and eases communication

Enhanced cooperate image - Reference pool for research

Enhances publishing

1. (a) Give **three** features of an electronic word processor interface. (3 marks)

Replace Multi-columns

Spell checker Clip Art Gallery

Grammar checker Mathematical formulae typesetting

Thesaurus

(b) Give ***two*** publications that can be created using desktop publishing (DTP) software. (2 marks)

Web Page Labels Resumes

Invitations Calendars Brochures Templates

(c) Give **one** use of each of the following electronic presentation features

(i) **Slide master**: (1 mark)

To control the appearance of the entire presentation

(ii) **Slide sorter view**: (1 mark)

Facilitate realignment of slides in the presentation

**Turn Over**

(d) State **three** uses of electronic presentation software (3 marks)

Teaching and Learning

Promotional Slides

Publishing like Web designing

Entertainment

1. (a) State **three** ways of error detection in a program code (3 marks)

Dry-run/Desk checking

Using debugging utilities

Using Test Data

(b) Briefly explain the following categories of program codes

(i) **Source code:** (1 mark)

A program code that the programmer enters in the program editor window that is

Not yet translated into machine – readable form.

(ii) **Object code:** (1 mark)

A program code that is in machine – readable form (bits) ie. A source code that has

Been translated into machine language.

(c) Name **two** categories of operating systems (2 marks)

Single User operating systems Graphical User operating systems

Multiuser operating systems Command line operating systems

(d) Supposing a computer user installed Windows 7 software on his/her computer. Give **three** functions the software can perform in the computer system. (2 marks)

Memory Management Monitoring System Performance

Provide the interface Administering security

Spooling of Print Jobs Accomplish booting process

Configuring devices Managing storage media and files

**Turn Over**

**SECTION C (20 MARKS)**

*Answer only* ***one*** *question from this section. Answers to this question must be done on the answer booklet/sheets provided.*

1. (a) You are provided with the following computer hardware parts and other electrical accessories:
2. Monitor power cable
3. AC main socket outlets
4. System Unit power cable
5. Keyboard
6. HDMI cable
7. Extension Cable with six ports
8. System Unit
9. Monitor
10. Mouse

Describe how they can be assembled to make a complete functioning computer **(06 marks)**

**(b)** Assuming that you have been provided with the following tools; anti-virus utility tools kit, five CCTv cameras, cable seals, Alarm alert devices, device engraving tool, burglar proof set, ten automatic security lights, G7 model Firewalls kit, and a security guard. Demonstrate how you would use the above mentioned tools to enhance computer systems security. ***(09 marks)***

**(c)** Identify **five** technical problems which can hinder computer use and suggest a solution to each. ***(05 marks)***

1. **(a)** Explain the process of program development cycle. ***(08 marks)***

**(b)** Mountain Biking wants an application that allows the store clerk to enter an item’s price and the quantity purchased by a customer, but every item is charged a tax of 200. The application should calculate the total amount the customer owes by multiplying the price by the quantity purchased plus the tax. It should then display the total amount owed.Using ***C*** or ***VB*** programming language help Mountain Biking to achieve their needs. ***(12 marks)***

1. **(a)** Explain **five** computer professions in Uganda. ***(10 marks)***

**(b)** Due to the increasing technology around the globe, various computer crimes have been committed by various categories of people. Explain some of these crimes. ***(10 marks)***

***END***

1. (a) Describe how they can be assembled to make a complete functioning computer **(06 marks)**

* **Plug the Extension power cable into the AC main socket outlets**
* **Plug the monitor power cable into one of the ports of the Extension cable and connect another end to the monitor power port.**
* **Plug the System unit power cable into one of the ports of the Extension cable and connect another end to the System unit power port.**
* **Plug the mouse to the System Unit**
* **Plug the keyboard to the System Unit**
* **Connect one end of the HDMI to Monitor and another end to the System Unit**

**(b)** Assuming that you have been provided with the following tools; anti-virus utility tools kit, five CCTv cameras, cable seals, Alarm alert devices, device engraving tool, burglar proof set, ten automatic security lights, G7 model Firewalls kit, and a security guard. Demonstrate how you would use the above mentioned tools to enhance computer systems security. ***(09 marks)***

* **Anti-virus utility tools kit:**

Used to search, detect, prevent and remove system malwares like viruses, worms and Trojans.

* **Five CCTv cameras:**

Used to take video proceedings of surroundings for security purposes

* **Cable seals:**

Used to attach data and electrical cables together to avoid unnecessary removal and movements.

* **Alarm alert devices:**

Used to make alarm notifications or alerts once activated for security purposes

* **Device engraving tool:**

Used to make special marks of identity characters onto hardware devices for attachment or belonging.

* **Burglar proof set:**

Used to keeping door-ways, vents and windows re-enforced with metallic or wooden barriers to inconvenience burglars.

* **Ten automatic security lights:**

Used to put off wrong doers by keeping places of computer installations lit in case they attack.

* **G7 model Firewalls kit:**

A combination of hardware and software used to filter information coming through a network. It can be for digital content, devices or moral protection of system users.

* **Security guard:** This can be in form of live objects used to keep security or scare off would be burglars and thieves. Can be humans or specialized dogs

**(c)** Identify **five** technical problems which can hinder computer use and suggest a solution to each. ***(05 marks)***

|  |  |
| --- | --- |
| ***Problem*** | ***Solution*** |
| Computer cannot start | check that the computer is plugged to  into power |
| The screen is blank | -Ensure monitor is plugged into power point  -Secure the connection between monitor and computer hard drive |
| Windows won’t boot | Reinstall Windows |
| Computer frozen | Restart the computer |
| Computer slow | Install antivirus, firewall or antispyware tool |
| Fan makes a lot of noise | Clean/replace the fan |
| Computer is overheating | Replace fan |
| Computer keeps restarting | Update all critical system drivers (graphics card, motherboard and network card) |
| Printer won’t work | -Ensure printer is connected to the computer  -Install printer drivers if not installed  -Turn the printer off and on  -Unplug the printer and plug it back |
| Non system disk | Remove non-system disk from boot device |
| No operating system found | Install operating system e.g. Windows |
| Hard disk makes a lot of noise | Back up data and replace the hard disk |

1. **(a)** Explain the process of program development cycle. ***(08 marks)***
2. **Problem recognition (Identification of the problem).**

Problem recognition refers to the understanding and interpretation of a particular problem. The programmer must know what problem he/she is trying to solve. He/she must also understand clearly the nature of the problem & the function of the program.

1. **Problem definition.**

In Problem definition, the programmer tries to define (determine) the:

1. Output expected from the program.
2. Inputs needed to generate the output information.
3. Processing activities (requirements), and
4. Kind of files which may be needed.
5. **Program design.**

Program design is the actual development of the program’s process or problem solving logic called the Algorithm. It involves identifying the processing tasks required to be carried out in order to solve the problem.

1. **Program coding.**

Program coding is the actual process of converting a design model into its equivalent program. Coding requires the programmer to convert the design specification (algorithm) into actual computer instructions using a particular programming language.

1. **Program testing & debugging.**

After designing & coding, the program has to be tested to verify that it is correct, and any errors detected removed (debugged). Testing is the process of running computer software to detect/find any errors (or bugs) in the program that might have gone unnoticed.

1. **Program Implementation and maintenance.**

Implementation refers to the actual delivery, installation and putting of the new program into use. The program is put into use after it is fully tested, well documented, and after training the staff who will be involved in the running of the new program.

Once the program becomes operational, it should be maintained throughout its life, i.e., new routines should be added, obsolete routines removed, & the existing routines adjusted so that the program may adapt to enhanced functional environments. The main objective of maintenance is to keep the system functioning at an acceptable level.

1. **Program documentation.**

The programmer should describe all what he was doing during the program development stages. Program documentation is the writing of supportive materials explaining how the program can be used by users, installed by operators, or modified by other programmers.

**(b)** Mountain Biking wants an application that allows the store clerk to enter an item’s price and the quantity purchased by a customer, but every item is charged a tax of 200. The application should calculate the total amount the customer owes by multiplying the price by the quantity purchased plus the tax. It should then display the total amount owed.Using ***C*** or ***VB*** programming language help Mountain Biking to achieve their needs. ***(12 marks)***

**Pseudocode**

**Start**

Set Tax to 200

Promt the User for ‘ItemName, ItemPrice, Quantity’

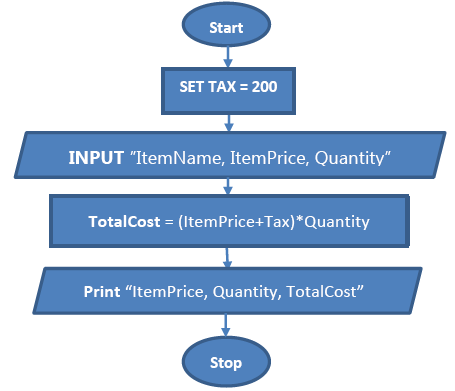
Read ‚ItemName, ItemPrice, Quantity‛

TotalCost = (ItemPrice + Tax)\*Quantity

Print ItemPrice, Quantity, TotalCost

**Stop**

**Flow Chart**



***VB Code***

**Private Sub Command1\_Click()**

Dim ItemPrice, Quantity, TotalCost As Integer

Dim ItemName As Double

Const Tax As Double = 200

ItemName = Val(InputBox("Enter ItemName"))

ItemPrice = Val(InputBox("Enter ItemPrice"))

Quantity = Val(InputBox("Enter Quantity"))

TotalCost = (ItemPrice + Tax) \* Quantity

MsgBox ("ItemPrice is:" & ItemPrice & " Quantity Is :" & Quantity & "TotalCost is:" & TotalCost)

**End Sub**

1. **(a)** Explain **five** computer professions in Uganda. ***(10 marks)***

* ***Information System Management*** *– professionals in this area serve as technology managers and decision makers within an institution*
* ***Computer programming*** *– professionals in this area implement the designs of software engineers writing programs*
* ***Database administration*** *– in this field, professionals are responsible for handling information stored on the computer database*
* ***Network administration*** *– professionals in this field are responsible for building, maintaining and repairing computer networks.*
* ***Software engineering*** *– in this area, professionals design and engineer programs that can work within hardware limitations*
* ***Website development*** *– website developers design websites for individuals and or organizations*
* ***A web administrator is responsible for:*** *Developing and testing websites. Maintaining, updating and modifying information on the website to meet new demands by the users.*
* ***Software engineers:*** *Most Software engineers analyses user needs and create application software. Software engineers usually have experience in programming, but focus on the design and development of programs using the principles of mathematics and engineering.*
* ***Computer Trainers:*** *Computer trainers typically teach new users how to use the computer software and hardware.*
* ***Computer operator:*** *Some of the responsibilities of a computer operator include;*

*Entering data into the computer for processing. Keeping up-to-date records (log files) of all information processing activities.*

* ***Computer technician***

*• Given that computers require regular maintenance, upgrading as well as emergency repairs, demand for computer technicians continues to grow as more people computerize their workplaces and homes.*

*• Some of the responsibilities of a computer technician are;*

*• Troubleshooting computer hardware and software related problems.*

*• Assembling and upgrading computers and their components.*

*• Ensuring that all computer related accessories such as printers modems, storage media devices are in good working condition.*

**(b)** Due to the increasing technology around the globe, various computer crimes have been committed by various categories of people. Explain some of these crimes. ***(10 marks)***

**Physical theft -** The physical theft of computer hardware and software is the most widespread related crime especially in developing countries.

• The most common issues now, we here cases of people breaking into an office or firm and stealing computers, hard disks and other valuable computer accessories. In most cases such theft can be done by untrustworthy employees of firm or by outsiders. The reason behind an act may be commercial, destruction to sensitive information or sabotage.

**Piracy -** illegal copying of software, information or data.

**Fraud -** Fraud is stealing by false pretense. Fraudsters can be either employees in a company, non-existent company that purports to offer internet services such as selling vehicles etc. other form of fraud may also involve computerized production and use of counterfeit documents. This is due to the dynamic growth of internet and mobile computing, sophisticated cybercrimes.

**Sabotage -** Sabotage refers to illegal destruction of data and information with the aim of crippling services delivery, or causing great loss to an organization. Sabotage is usually carried out by disgruntled employees or competitors with the intention of causing harm to an organization.

**Eavesdropping -** Eavesdropping refers to tapping into communication channels to get information. Hackers mainly use eavesdropping to access private or confidential information from internet users or from poorly secured information system.

**Surveillance (monitoring) -** Surveillance refers to monitoring use of computer system and networks using background programs such as spyware and cookies. The information gathered may be used for one reason or the other e.g. spreading sabotage.

**Industrial espionage -** Industrial espionage involves spying on a competitor to get information that can be used to cripple the competitor.

**Accidental access -** Threats to data and information come from peoples unknowingly giving out information to strangers is or unauthorized persons.

**Alteration -** Alteration is the illegal modification of private or confidential data and information with the aim of misinforming users. Alteration is usually done by people who wish to cancel the truth or sabotage certain operations. Alteration comprises the integrity of data and information making it unreliable.

***END***