MARKING GUIDE SUB ICT S850/1

Question 1

a) Justify any *three* main reasons for using computers by government in your country.
   Solution:
   i.   *It helps in national census (population counts) (01 mark)*
   ii.   *It facilitates the National Voting process. E.g; Presidential and members of parliament among others of a country. (01 mark)*
   iii.   *Faster and reliable means of communication among government workers. Eg; use of email address. Whatapps, and teleconferencing   .(01 mark)*
   iv.   *Keeping records of public servants in different ministries and sectors.*

b) State any *two* types of computers in use today.
   Solution
   i.   *Digital computers*   *(01 mark)*
   ii.   *Analogue Computers*   *(01 mark)*
   iii.   *Hybrid computers*

Question 2

a) State one use of the following computing devices.

   i.   Mainframe computer

   Mainframe computers (colloquially referred to as "big iron") are computers used primarily by large organizations for critical applications, bulk data processing, such as census, industry and consumer statistics, enterprise resource planning, and transaction processing.   (01 mark)

   ii.   Super Computer

   Supercomputers play an important role in the field of computational science, and are used for a wide range of computationally intensive tasks in various fields, including quantum mechanics, weather forecasting, climate research, oil and gas exploration, molecular modelling   .(01 mark)

   iii.   Microcomputer.

   - *The microcomputer has replaced most basic paperwork, and has become a fixture for design and architecture firms, film studios and many other businesses*   *.(01 mark)*

   - *Microcomputers also play a critical role in the medical field. From small private clinics to large hospitals, microcomputers are employed to manage patient histories.*

b) Several factors must be considered when choosing a computer case. State any two factors.

Solution:
Select a case that matches the physical dimensions of the
    i.   *power supply and*   *(01 mark)*
    ii.   *motherboard*   *(01 mark)*

Question 3

a) State any **three** benefits of Lab care and preventive maintenance of computer systems

Solutions:
    i.   *Detects earlier problems that may cause system start-up errors, hanging applications and warm booting.*

    ii.   *Keeping the computer healthy and running smoothly by protecting it from viruses, malware, and spyware that can be difficult to remove and cause computer to run slowly.*

    iii.   *Helps to keep the computer clean from dirt, dust and debris.*

    iv.   *Helps to keep the computer in a good working condition that can work for a long time with new upgrades and updates which will make the computer work fast.*

a) List any **two** factors to consider when preparing a computer laboratory.

Solution

    i.   *Security of computers, programs and other resources*
    ii.   *Reliability of the power source*
    iii.   *The number of computers to be installed and the available floor space*
    iv.   *The maximum number of users that the computer laboratory can accommodate*

Question 4

Match the following file extension: **.ai, .midi, .ram, .jpeg .swf, .mp3, .tiff, .bmp,** with respective correct description.   (05 marks)

| File Extension	Description
.ram	Used mainly for real-time streaming of audio and video it requires RealPlayer (Windows and Mac) software.
.mp3	Digital music, pod casts and audio books files
.ai	File extension that represent single-page vector-based drawings created using Adobe Illustrator.
.bmp	It is a standard Windows image format that is created using Microsoft's Paint or Paintbrush programs.
.jpeg	Digital cameras often save images in the file format.

Question 5

a) If you don't instruct "tell" the computer to do otherwise, it will save you the following files in my document. State the specific fodder involved.

    i.   Music files to the ……………**Music**………........folder   (01 mark)

    ii.   Pictures to the ………………….**Pictures**………….folder   (01 mark)

    iii.   Videos to the ....*Videos..*........................ folder.   (01 mark)

b) List any two steps you will take when creating a folder on the Desktop.

    Solution:

    i.   *Using a mouse or any pointing device, right-click on the any free space on the desktop. Various options will pop-up   (01 mark)*

    ii.   *Chose option New and select Folder. Provide the folder with a name. 01 mark*)

Question 6

Study the following diagram of components in a computer system unit and answer the questions that follow:
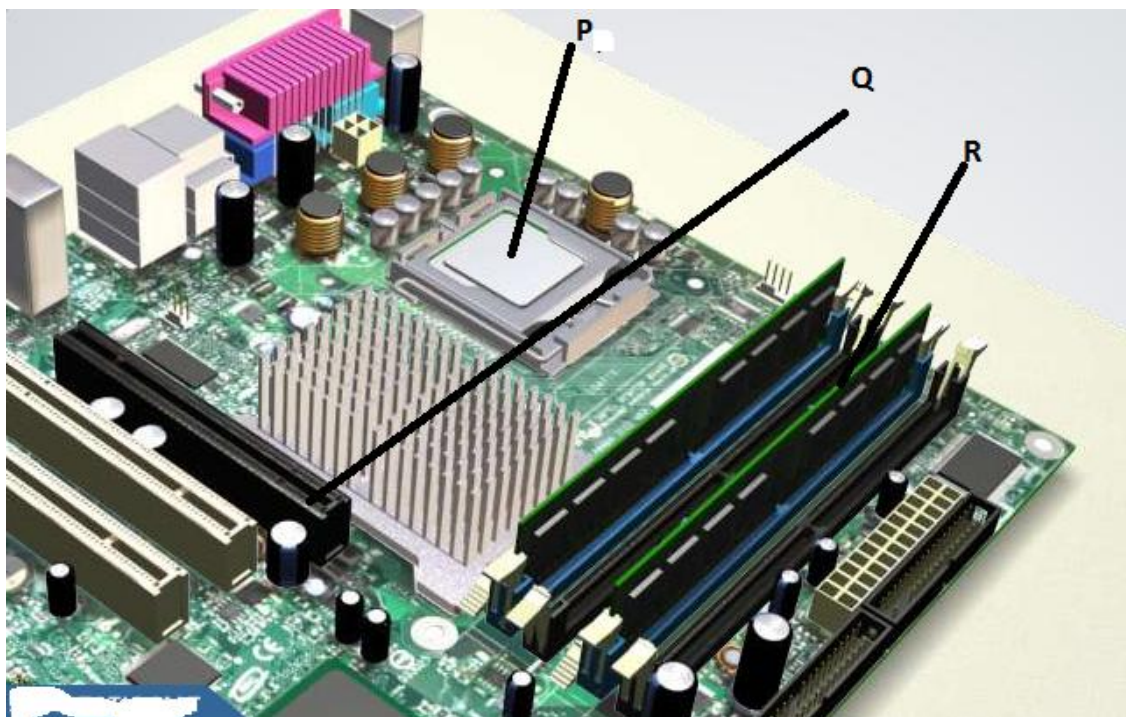
a) Give the ICT name for the parts labelled:

    i.   **P**..................**Central Processing Unit (CPU)**...(01 mark)

    ii.   **Q**................**Expansion Slot**.(PCI, AGP, PCIe)..(01 mark)

    iii.   **R**........**Random Access Memory**...(01 mark)

b) Study and state the main function of parts labelled:

  i.   **P**. *Is responsible in processing, manipulating of data to information.*   .(01 mark)

  ii. **R**..*Is to enhance the capabilities and functionalities of a computer system*. (01 mark)

Question 7

You are given a task of assembling a computer system. Use the following procedure to arrange your five steps chronologically.

Consider the following steps: (01 mark @ = 05 marks)

  i.   **Connect the external cables to the ports on the back of the computer.**

  ii. **Connect all internal cables to the appropriate computer components.**

  iii. **Attach the power supply to the case.**

  iv. **Install the RAM, CPU, Thermal compound and Heat sink on the motherboard and screw the motherboard on the system case.**

  v.   **Connect the adapter cards, internal drives such as HDD, CR-RW/DVD and FDD drives in external bays.**

Question 8

a) Explain the following two types of memory

  i.   Volatile memory

       RAM is volatile memory, which means that its contents are lost when the computer is shut down.   (02 marks)

  ii. Non-Volatile Memory

       ROM is non-volatile memory, which means that its contents are not lost when the computer is shut down.   (02 marks)

b) A **USB port** can connect up to 127 different peripherals together with a single connector. State where USB port type B are used:

On Printer Interface, **scanner, Digital camera, and photocopying machines.** (01 mark)

Question 9

a) Give any two good reason for using the following today:

  i.   Dot Matrix Printer   (02 marks)

       • **The printer dot matrix printer can be used in multipart forms.**

       • **Uses less expensive ink than inkjet or laser printers.**

- **Uses continuous feed paper.**

- **Has carbon-copy printing ability.**

    ii.   Ink jet printer   (02 marks)

- **Initial low cost**

- **High resolution**

- **Quick to warm up**

b) Why interactive whiteboards (Smart boards) are commonly used in Secondary and colleges and Universities today?   (01 mark)

- **One of the main advantages of interactive whiteboards is that all work can be saved and stored with ease as everything is done through a computer.**

- **The interactive whiteboard supports most multi-media materials, such as images, texts, audio and video documents from various input devices, including desktops, laptops, DVD players, USB drives.**

- **With the right hardware, users can connect interactive whiteboards to IOS and Android smart devices with a single application. This results in a greater range of data sharing and interconnectivity.**

- **Just think of how much money you will save each year on dry erase markers or chalk if you still use a blackboard. By using our interactive whiteboards and LCD monitors you will dramatically cut down on classroom expenses while exponentially improving the learning environment within your classroom.**

Question 10

a) Suggest any **three** reasons for having operating software in a computer system.

An **operating system** has three main **functions**: (1x3 = 3marks)

    i.   **Manage the computer's resources, such as the central processing unit, memory, disk drives, and printers,**

    ii.   **Establish a user interface, and**

    iii. **Execute and provide services for applications software.**

Other functions of operating systems are:

- **Managing Resources:** Programs that manage the resources of a computer such as the printer, mouse, keyboard, memory and monitor.
- **Providing User Interface:** Graphical user interface (GUI) is something developers create to allow users to easily click something without having to understand how or why they clicked an icon. Each icon on a desktop represents code linking to the spot in which the icon represents. It makes it very easy for uneducated users.

- **Running Applications,** is the ability to run an application such as Word processor by locating it and loading it into the primary memory. Most operating systems can multitask by running many applications at once.
- **Support for built-in Utility Programs:** This is the program that find and fixes errors in the operating system.
- **Control Computer Hardware:** All programs that need computer hardware must go through the operating system which can be accessed through the BIOS (basic input output system) or the device drivers.

b) Which Windows hard drive partition is commonly referred to as the C: drive? (02 marks)

The First Primary Partition

Question 11

a) Outline any **three** industrial areas where relational database systems are applied today.

    i.   **Production of academic transcripts, (01 mark)**

    ii.   **Online shopping and supermarket record keeping and transactions (01 mark)**

    iii.   **Library Information system for keeping books (01 mark)**

b) State any **two** examples of Database Management System (DBMS) you know.

    i.   **Microsoft Access.**   **(01 mark)**

   ii.   **Oracle, SQL, Firebird, Perl.**   **(01 mark)**

Question 12

a) With the knowledge of the Desktop Publishing software, Describe chronological five steps required when designing a calendar for year 2018.

Solution:
    i.   *Open Microsoft Publisher Application by finding it under Start Menu.*
    ii.   *Click on Calendars from the main window or the list on the left.*
    iii.   *Click on one of pre-designed templates that you like. It will appear at the top of the area on the right side of the page.*
    iv.   *Click on the set Calendar Dates button and choose the period of time that you would like your calendar to cover E.g. 1 month or 1 year.*
    v.   *Click on Create at the bottom to create your calendar.*

Question 13

Study the Uniform Resource Locator (URL) exhibited. Use it to answer the following questions:
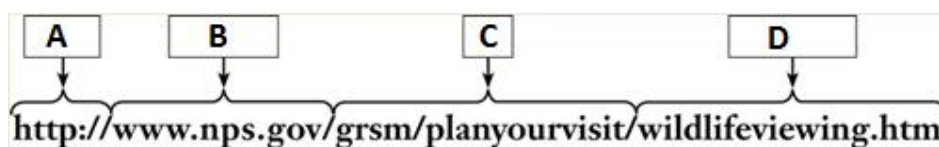
a) Name the parts of the URL labelled:

   i.   **A**............................**Protocol..**(01 mark)

   ii. **B**. ....**Domain Name**...(01 mark)

   iii. **C**. ....**Path**.................... ....(01 mark)

   iv. **D**. ....**Web Page Name (File Name)**..................................(01 mark)

b) If the Internet Protocol address of the server with this URL is 192.168.40.34/24 which protocol can be used to map the URL to IP address given?

   Domain Name System (DNS) Protocol..   (01 mark)

Question 14

Match the following Internet protocols to appropriate descriptions: **SMTP, POP, IMAP, FTP, DHCP, TFTP, SNMP**

   i.   ....**FTP**...used for interactive file transfer between systems.

   ii. ....**TFTP**..............used for connectionless active file transfer.

   iii. ....**SMTP**..............used for the transfer of mail messages and attachments.

   iv. ....**POP..........**used by email clients to retrieve email from a remote server after which the copy of the email is deleted from the server.

   v.   ....**IMAP**.............used by email clients to retrieve email from a remote server after which the copy of the email is retained in the server.

Question 15

a) Provide two differences between Extended Binary Coded Decimal Interchange Code (EBCDIC) and American Standard Code for Information Interchange (ASCII) code sets.

   i.   ***EBCDIC uses 8 bits while ASCII uses 7 bits in character presentations. (01 mark)***

   ii. ***EBCDIC Used on Old IBM Mainframes while ASCII is used on any modem computer systems.***   (01 mark)

iii. **No parity bit for error checking in EBCDIC while there is parity bit for error checking in ASCII**

b) Explain the following two types of data transmission:

i. Parallel Transmission

In this all the bits of a *byte* are transmitted simultaneously on separate wires. (01 mark)

Practicable if two devices are close to each other e.g. Computer to Printer, Communication within the Computer.

ii. Serial Transmission. (01 mark)

- **Bits are transmitted one after the other.**

- **Usually the Least Significant Bit (LSB) has been transmitted first.**

- **Suitable for Transmission over Long distance**

b) State one method for Timing control for receiving bits in data communication.

- **Asynchronous Transmission**

- **Synchronous Transmission.** (01 mark)

Question 16

a) State any **three** advantages of peer –to –peer Network model (03 marks)

Solution:

i. **No need for specialist staff such as network technicians because each user sets their own permissions as to which files they are willing to share.**

ii. **Much easier to set up than a client-server network - does not need specialist knowledge.**

iii. **If one computer fails it will not disrupt any other part of the network. It just means that those files aren't available to other users at that time.**

iv. **Less complexity.**

v. **Can be used for simple tasks such as transferring files and print sharing.**

vi. **Lower cost since network devices and dedicated servers may not be required.**

b) State any **two** disadvantages of client-server Network model

Solution:

i. **A specialist network operating system is needed.** (01 mark)

ii. **The server is expensive to purchase.** (01 mark)

iii. **Specialist staff such as a network manager is needed.** **(01 mark)**

iv. **If any part of the network fails a lot of disruption can occur.**

Question 17

a) Outline any **three** methods of controlling effects of computing devices on environments.

Solution:

i. **Use computers and devices that comply with the ENERGY STAR Program.**

(01 mark)

ii. **Do not leave the computer running overnight.** **(01 mark)**

iii. **Use LCD monitors instead of CRT monitors.** **(01 mark)**

iv. **Use paperless method to communicate.**

v. **Recycle old computers, printers and other devices.**

b) Suggest any two tips of preventing viruses and other malware from attacking computer system and Networks.

Solution:

i. **Never start computer with a removable media inserted in the drives or plug in the port. Unless the media is uninfected.** **(01 mark)**

ii. **Scan all downloaded programs for virus and malware.** **(01 mark)**

iii. **Install an antivirus program in all your computers. Update the software and virus signature file regularly.**

iv. **Never open an email attachment unless you are expecting it and its from trusted source.**

Question 18

a) In additional to using firewalls, suggest any **three** safeguards that can improve the security of wireless networks.

Solution

i. **A wireless Access Point should not broadcast an SSID.** **(01 mark)**

ii. **Change the default SSID and administrative settings.** **(01 mark)**

iii. **Configure a WAP so that only certain devices can access it.** **(01 mark)**

iv. **Use WPA or WPA2 security Standards.**

v. **Shutdown your access point if not in use. Turn it off when not in use.**

vi. **Use security policy of an institution/organization.**

b) Suggest any two Information Technology Code of Conduct a student must possess when using a computer system:

Solutions:

- **Computer may not be used to harm other people.**
- **Employees may not interfere with other's computer work**
- **Employees may not meddle in others' computer files.**
- **Computers may not be used to steal.**
- **Employees may not copy or use software illegally.**
- **Employees may not use others' computer resources without authorization.**
- **Employees may not use others' intellectual property as their own.**
- **Employee should consider the impact of programs and systems they design.**
- **Employees always should use computers in a way that demonstrates consideration and respect to fellow humans**.

Question 19

An organisation needs to open businesses such that RUTER 1 is located at Mbale town, ROUTER 2 at Jinja Town, ROUTER 3 at Kampala City and ROUTER 4 at Mbarara town for easy manageability. Study the network topology in Figure 1 and answer the following questions:
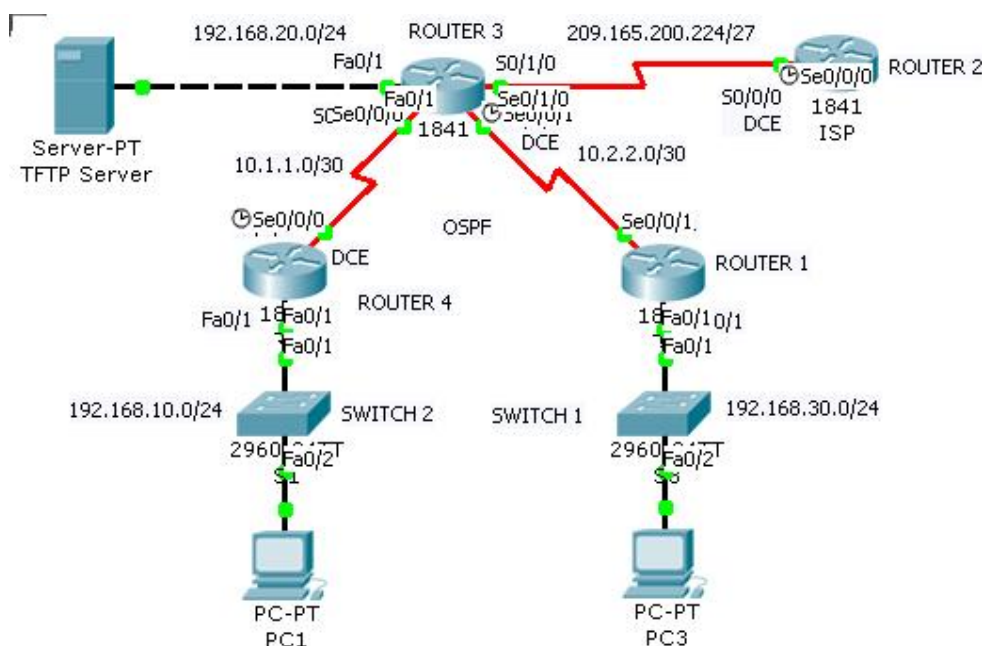
Fig.1

a) State the number(s) of Wide Area Network in this topology.

..................................**Three (03)..**(01 mark)

b) How many Local Area Network(s) is/are presented in the topology?

.................................**Three (03)..........................**(01 mark)

c) How many network devices are in this topology?

........................**Six (06)........................**(01 mark)

d) How many end users devices are in this network?

........................**Three (03) ....**(01 mark)

e) What type of physical topology is exhibited in this network?

.............**Star /Extended Star Topology**........................(01 mark)

Question 20

a) Explain the following Intellectual Property Rights.

    i.   Copyrights. **Copyrights protect the expression of ideas. Artistic works are generally considered to be expressions of ideas – books, paintings, songs, movies, and computer programs are examples. Copyright will not protect the process through which a particular work was created or the use of information within it (instructions, etc.).** (02 marks)

    ii.   Patent: **A patent is a right, granted by the government, to exclude others from making, using, or selling your invention. Patents protect inventions such as new processes, machines, or chemicals.** (02 marks)

b) State one benefit of Digital signature in an online business?

Solution:

    i.   **Often used to ensure that an impostor is not participating in an Internet transaction.** **(01 mark)**

    ii.   **Because it's so fast and easy to sign documents online, you're sure to see faster contract turnaround. (Get Paid Faster)**

    iii.   **Digital signature software makes it easy to track your documents in your online dashboard. And some software will even send signers a reminder email if they forget to sign.**

END