**EQUATORIAL COLLEGE SCHOOL**

**MARKING GUIDE FOR PRE MOCK COMPUTER STUDIES**

***SECTION A***

|  |  |  |  |
| --- | --- | --- | --- |
| **1 C** | **6. A** | **11. A** | **16. C** |
| **2. D** | **7. B** | **12. B** | **17. A** |
| **3. C** | **8. A** | **13. B** | **18. B** |
| **4. A** | **9. C** | **14. D** | **19. D** |
| **5. D** | **10. B** | **15. D** | **20. C** |

***Section B (60 marks)***

***Answer all questions from this section.***

1. (a) Explain why Analytic Engine designed by Charles Babbage made him the father of modern computers?

* **Analytic engine had components such as memory, input, output and store whose technology is use in modern computers.** (02 marks)

(b) Give one good reason for the following innovations:

1. Vacuum tubes were replaced by transistors in the second generation of computer.

* **Transistors were used in the second generation to reduce great heat generated by the vacuum tube technology causing many problems in temperature regulation and climate control.**
* **The tubes also burnt out frequently in the second generation of computer. (02 marks)**

1. Computers in the second generation consumed great deal of heat than in third generation.

* **Computers in the third generation were made smaller with smaller components such Integrated circuits (ICs) which required less power than that of second generation (the Transistors)** ..(02 marks)

(c). Suggest any one main innovation which describes feature of:

1. Fourth Generation Computers

* **Use of Silicon Chips which involved Large Scale Integrated Circuits**.

(02 marks)

1. Fifth Generation Computers

* **Use of Silicon Chips which involved Very Large Scale Integrated Circuits**. (02 marks)

1. (a) Explain any three main areas in sports where computer systems are used.

* **By using ICT, athletes and sporting goods companies can take advantage of innovative technologies to improve their performance or enhance their product line.**
* **For example, sports fans subscribe to RSS feeds to keep up with the latest information about their favorite teams while stadiums use computer applications for goal line technology.**
* **CAD is used to design sail boats, kayaks, tennis racquets and Formula One race cars as well.**
* **The use of ICT makes the results more accurate and well-organized.**
* **Also, ICT provides evidence for the officials so they will not receive complaints or abuse from the opposition - i.e. a tennis ball being shown as out.**
* **Some sporting organizations may use a computer to assess sports injuries.**
* **In Athletics, technology is used to detect false starts.**
* **Use of websites for the advertisement of sporting events.**
* **In sailing races, navigation software is used, connected to the Internet and GPS for tracking location.**

(b)State the use of VGA Port in a computer system. (02 marks)

* **Users employ Video Graphics Array (VGA) ports to transfer analog video signals from one machine to another using VGA cables.**
* **Used to connect VGA and Super VGA monitors to the computer.**

(c). Identify the colors typically used for the following ports:

1. PS/2 Mouse:…**Green**  (01 mark)
2. Microphone (input):……………**Pink**  (01 mark)
3. List and describe any five factors in choosing the computer case: (02x5=10 MARKS)
4. **Model type: Desktop (lays flat) versus tower (stands up).**
5. **Size: Case should have enough space for installed components.**
6. **Available space: Desktop cases allow space conservation in tight spaces whereas tower can be located under desk.**
7. **Amount of devices: More devices need more power, which also requires a larger power supply.**
8. **Power supply: Must match the power rating and connection type.**
9. **Environment conditions: If you work in a dusty environment, you need to choose a case that reduces the amount of dust that enters the system.**
10. Match the definition on the left with each of these terms: **Active partition, Formatting, Partitioning, Registry,** and **Windows Explorer.**
11. The process of assigning part or all of the drive for use by the computer is **Partitioning**

(02 marks)

1. **Registry** is a central information database for Windows 2000 and Windows XP organized into a structured hierarchical database to hold hardware, operating system, and application settings and configuration. (02 marks)
2. **Windows Explorer**: allows a user to manage files and directories from a single graphical interface. (02 marks)
3. The partition used by the operating system to boot the computer is **Active partition**.

(02 marks)

1. **Formatting**..Prepares a file system in a partition for files to be stored. (02 marks)
2. (a) Describe the best method to keep the laptop computer cool.

**By placing on a flat surface where vents are unobstructed. Also keep the vents clean.** .(02 marks)

(b)Describe the best method to clean the following components:

* 1. Laptop keyboard:

**Blow compressed air between the keys. Wipe laptop and keyboard with a soft, lint-free cloth lightly moistened with water or computer-screen cleaner.** (02 marks)

* 1. LCD**:**

**Wipe display with a soft, lint-free cloth lightly moistened with water or LCD cleaner.** ……………………………………………………(02 marks)

* 1. Touch pad:
* **Wipe surface of touch pad gently with a soft, lint-free cloth moistened with an approved cleaner.**
* **Never use a wet cloth. ……………………… .(**02 marks)
  1. CD:
  + **Hold the disk by the outer edge of the disc or by the inside edge of the center hole.**
  + **Gently wipe the disc with a lint-free cotton cloth.**
  + **Never use paper or any material that may scratch the disc or leave streaks.**
  + **Wipe from the center of the disc outward. Never use a circular motion.**
  + **Apply a commercial CD or DVD cleaning solution to the lint-free cotton cloth and wipe again if any contaminates remain on the disc. Allow the disc to dry before it is inserted into the drive**. .. (02 marks)

1. (a) Explain the term authentication as applied to computer systems.

**The ability to verify the identity of a user, system, or system element** (02 marks)

1. Outline any four common methods of computer authentication today.
   1. Passwords (02 marks)
   2. Smart Cards (02 marks)
   3. Biometrics (02 marks)
   4. Digital Certificates (02 marks)

**SECTION C (20 MARKS)**

*Attempt only* **ONE** *question in this section. Answers to the question* **must** *be done in the answer sheet provided.*

27. a) Define **computer virus**. *(02 marks)*

 *A computer virus is a software program that is designed to copy itself over and over again and to attach itself to other programs.*

 *A piece of code that is capable of copying itself and typically has a detrimental effect, such as corrupting the system or destroying data.*

***Any 1x2 =marks***

b) State **five** ways in which computer viruses spread. *(05 marks)*

 *Email attachments*

 *Visiting fake websites*

 *Using illegitimate/pirated software*

 *Using fake antiviruses*

 *Sharing infected storage media*

 *Joining a network of infected computers*

***Any 5x1 = 5marks***

**c) Give five reasons for restarting a computer *(05 marks)***

• When an application or operating system freezes/hangs/ does not respond  
• After installation of a new software (application or utility)  
• When a peripheral or hardware component has failed to function/work  
• During/After installation of operating system.  
• After changing use control settings(CMOS/BIOS settings)  
• When a user wants to clear a malicious infection like malware, spyware, viruses that are in memory  
• After software update  
• After uninstalling software  
• After uninstalling hardware  
• After installing a new hardware  
• When the computer system slows down  
• When a user wishes to switch from one operating system to another (Multiple O.S)  
• After malware/virus scanning  
• Before Installing software  
• When application software fails to work ***Any 5x1 = 5marks***

d) Identify **four** technical problems which can hinder computer use and suggest a solution to each. *(08 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 |

***Identifying problems 4x1 = 4marks***

***Providing solutions 4x1 = 4marks***

**28**. a) Explain **four** computer professions in Uganda. *(08 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*

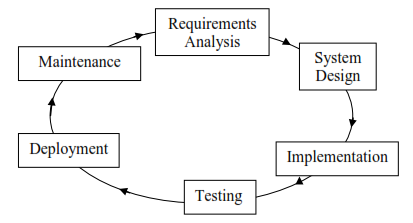
 ***Network administration*** *– professionals in this field are responsible for building, maintaining and repairing computer networks.*

 ***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 organisations* ***Any 4x2 = 8 marks***

b) Describe the steps taken when developing a new computer software program

*(12 marks)*



***Correct Illustration = 6 marks***

The sequential phases in Waterfall model are:

***Stage 1: Requirement Gathering and analysis:*** *All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification doc.*

***Stage 2: System Design:*** *The requirement specifications from first phase are studied in this phase and system design is prepared.*

***Stage 3: Implementation:*** *With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.*

***Stage 4: Integration and Testing:*** *All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.*

***Stage 5: Deployment of system:*** *Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.*

***Stage 6: Maintenance:*** *There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the product some better versions are* *released. Maintenance is done to deliver these changes in the customer environment*.

***Mentioning what is involved in each stage 6x1 = 6 marks***

1. (a) What is meant by an email? *(02 marks)*

* **Email (Electronic Mail) Communications refers to the transmission of messages via a computer network such as; a local area network or internet.**
* **The email can be simple text, or include an attachment such as a word processing document, a graphic, an audio clip or video clip.**

(b) Describe five advantages and Five Disadvantages of using email over ordinary letters. *(10 marks)*

**Advantages of using email as a means of communication**

* Easy to use. Emails applications have user friendly tools that help during composing messages.
* Email supports sending of attachments like documents, zipped files, e.t.c
* It is very fast in terms of speed: The e-mail is delivered instantly, anywhere across the globe.
* Easy to prioritize: Since the mails have subject lines, it is easy to prioritize them and ignore unwanted mails.
* Email messages can be sent to many recipients at the same time
* Emails can also carry hyperlinks that lead to other webpages with just a click
* One can subscribe to news and other online services through email
* Email software have management features that help users to organize their messages in folders like inbox, sent, draft, etc.
* Easier for reference: When one needs to reply to a mail, there is a provision in the mailing system to attach the previous mails as references. This refreshes the recipient's knowledge, on what he is reading.
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* There is flexibility in time of opening the e-mail for any time access. At any time of the day or night, one can communicate with friends, relatives, professors and business associates.
* Messages remain permanent for future and frequent accessing from anywhere.
* Use of graphics such as colorful greeting cards and interesting pictures can be sent through e-mails.
* Advertising tool: many individuals and companies are using e-mails to advertise their products, services, etc.
* Environment friendly: Postal mails use paper as a medium to send letters. Electronic mail thus, saves a lot of trees from being axed. It also saves fuel needed in transportation.
* Email software have address book features that may be sorted in alphabetical order.
* Email software has a good degree of security features such as username and password before sign in
* Email applications have inbuilt English dictionary which safeguards the sender from incorrect spelling and grammar.
* Email is a relatively cheap means of communication since there are no printing or postage expenses involved.

**Limitations of using Email as means of communication.**

* Emails can carry Viruses: The recipient needs to scan the mails, as viruses are transmitted through them and have the potential to harm computer systems.
* Spam and Junk: E-mails when used to send unsolicited messages and unwanted advertisements create nuisance called Spam. Checking and deleting these unwanted mails can unnecessarily consume a lot of time, and it has become necessary to block or filter the unwanted e-mails by means of spam filters.
* E-mail spoofing is another common practice. Spoofing involves deceiving the recipient by altering the e-mail headers or the addresses from which the mail is sent.
* Hacking and email interception: The act of unauthorized attempts to bypass the security mechanisms of an information system or network is termed as hacking. After the e-mail is sent and before it is received by the desired recipient, it "bounces" between servers located in different parts of the world. Hence, the e-mail can be intercepted by a professional hacker.
* Misinterpretation: One has to be careful while posting any kind of content through an e-mail. If typed in a hurry, the matter could be misinterpreted.
* The content posted via e-mails is considered informal. Therefore, there is a chance of business documents going unnoticed. Thus, urgent transactions and especially those requiring signatures are not managed through e-mails.
* Crowded inbox: Over a period of time, the e-mail inbox may get crowded with mails. It becomes difficult for the user to manage such a huge chunk of mails.
* Need to check the inbox regularly: In order to be updated, one has to check his e-mail account regularly, which may be expensive in the long run.
* Email cannot be used without computers especially in remote areas without electricity
* In case one forgets his/her password, signing in is not possible and this can lead to loss of information.
* Email may violate privacy in case someone else gets to know your user password since the other may check your mails.

(c) Why is it not good to have a lot of graphics on a web page *(03 marks)*

* **The web page may take too long to load.**
* **Client computers may not support different color depth.**
* **Graphics take a lot of space on a web page.**

(d) Identify **four** precautions a web designer should consider when designing a web page *(05 marks)*

* **Precious content**
* **Use of minimal graphics**
* **Consumer requirements**
* **Copy right considerations**
* **Take into account versions of client browsers**
* **Avoid use of frames. Because some users find frames confusing and prefer not to use them and that’s why web pages with frames often allow turning the frames off.**