**TERM 3 END YEAR EXAM - 2022**

**COMPUTER STUDIES**

***Kenya Certificate of Secondary Education (K.C.S.E)***

**FORM ONE PAPER 1**

**NOVEMBER 2022**

**MARKING SCHEME**

1. State the hardware technological difference between the second generation and the third-generation computers.

|  |  |
| --- | --- |
| **Second Generation computers** | **Third Generation Computer** |
| * **Use Transistors** | * **Uses integrated circuit** |
| * **Used punch cards for input** | * **Used Keyboard for input** |
| * **Used printouts for output** | * **Used monitor for output** |

**(Award 1 mark each max 2)**

1. State two ways of ensuring proper ventilation in a computer room.

* **Avoid overcrowding.**
* **Install air conditioning systems.**
* **Fit standard windows and doors.**
* **Have enough vents in the room.**

**(Award 1 mark each max 2)**

1. Mention three input devices that capture data through scanning.

* **Optical Mark reader**
* **Magnetic Ink Character Reader**
* **Optical Barcode Reader**
* **Optical Character Reader**
* **Magnetic Stripe Reader/Card Reader**
* **QR Code Reader**
* **Camera**

**(Award 1 mark each max 3)**

1. Describe three factors to consider before purchasing a computer memory module for upgrade.

* **Cost: Deals with the amount of money used to acquire the module which should be reasonable**
* **Compatibility the module acquired should be able to work with the existing hardware in harmony.**
* **The capacity deals with the size of the memory module in terms of what the memory can hold.**
* **Availability of slot: whether the computer have additional slot where the memory module will be inserted.**

**(Award 1 mark each max 3)**

1. State the SI unit for measuring computer speed, memory, and the monitor size.

* **Computer speed – Hertz**
* **Computer memory – Byte**
* **Computer Monitor – Inches**

**(Award 1 mark each max 3)**

1. Differentiate between POST and BIOS

* **Post (Power on Self-Test) is the diagnostic testing sequence that a computer runs to determine if the computer keyboard, random access memory, disk drives, and other hardware are working correctly while BIOS (Basic Input Output System) is a set of programs pre-install in the computer which responsible for managing and coordinating the POST process.**

**(Award 2 marks max 2)**

1. Briefly describe any two logical operations that can be performed by the Logical wing of the ALU.

* **Sorting –Arranging values either ascending or descending order.**
* **Comparison-Determining the relationship between the magnitude of different values.**

**(Award 1 mark each max 2)**

1. Explain the following features of secondary storage devices.
2. Mass storage

* **Secondary storage devices can hold large volumes of data.**

**(Award 1 mark max 1)**

1. Content cannot be accessed directly.

* **The content of secondary storage devices must be placed in primary memory so that the processor can interpret or execute.**

**(Award 1 mark max 1)**

1. Explain the term toggle key as used in computer keyboard.

* **A key that is operated the same way but with opposite effect on successive occasions.**

**(Award 2-mark max 2)**

1. List examples of toggle keys on a computer keyboard

* **Caps lock**
* **Num lock**
* **Scroll lock.**

**(Award 1 mark each max 2)**

1. Identify the printers that can be used to perform the following tasks.
2. Printing receipts and invoices

* **Impact printers**

**(Award 1 mark max 1)**

1. Printing Maps and charts

* **Plotter**

**(Award 1 mark max 1)**

1. State four factors to consider when selecting an input device for use in a computer room.

* **Cost**
* **Volume of data**
* **Speed**
* **Accuracy**
* **Reliability**
* **Mode of operation**
* **Appropriateness /suitability**

**(Award 1 mark each max 4)**

1. State three functions of uninterruptible power supply

* **Provide temporary power when there is sudden power loss.**
* **Protect the computer from brownout.**
* **Warn the user through beeps when the voltage goes down.**

**(Award 1 mark each max 3)**

1. James bought a flash disk which has a capacity of 2GB. Calculate the numbers of bytes that this flash can hold.

**1GB =1024 x 1024 x1024 ………………………… award 1mark**

**=1073741824 ……………………… award 1 mark**

**1073741824 x 2= 2147483648 ………………. Award 1 mark for the answer**

1. State three factors to consider when selecting an operating system to install in a computer.

* **User friendliness**
* **Security**
* **Reliability**
* **Cost**
* **Hardware requirement**
* **Application intended.**
* **Availability in market**
* **Documentation**

**(Award 1 mark each max 3)**

1. Differentiate between analogue data and digital data as used in computer.

|  |  |
| --- | --- |
| **Analogue Data** | **Digital Data** |
| **Continuous in nature** | **Discrete in nature** |
| **Represented as a continuous sine wave.** | **Represented graphically as a square wave.** |

**(Award 2-mark max 2)**

1. Define the following terms.
2. Deadlock

* **Deadlock is a situation where a set of processes are blocked because each process is holding a resource and waiting for another resource acquired by some other process.**

**(Award 1 mark max 1)**

1. Interrupt

* **It is a break from normal sequential execution.**

**(Award 1 mark max 1)**

1. Kernel

* **This the core of the operating system which is responsible for managing computer resources.**

**(Award 1 mark max 1)**

1. A student saved his practical work in a computer during the lesson. At the end of the lesson, he was requested by the teacher to delete the file unfortunately the student forgot the file name. Mention three attributes that this student may use to locate this file to delete it from the computer.

* **File extension**
* **Date of creation**
* **File size**

**(Award 1 mark each max 3)**

1. Describe four ways employed by the operating system to protect its data and programs.

* **Use of password and usernames to authenticate users this will only allow users with correct credentials to access the files.**
* **Modern operating systems support biometric technology. This makes good use of human attribute like fingerprints, Voice, image, and Irish for user identification.**
* **Some operating systems also allow the use of patterns. Users who draw the correct patterns gain access to the files those with the wrong patterns are denied access.**
* **Backup facility. The operating system has mechanism of creating backups which can be used to reconstruct the files.**
* **Recovery and restore features.**

**(Award 1 mark each max 4)**

1. Mention three functions of the recycle bin.

* **Temporally delete files from a storage location**
* **Restore deleted files.**
* **Permanently delete files from the computer**
* **(Award 1 mark each max 3)**

1. Explain why a control panel is usually referred to as a Toolbox.

* **It is considered as a toolbox simply because it has numerous commands or features that are used to set, change, or adjust the configurations the computer.**

**(Award 2 marks max 2)**

1. Give two functions of the Power supply unit.

* **Convert alternating currents to Direct currents.**
* **Power distributor within the system casing**

**(Award 1 mark each max 2)**

1. Describe two ways of discharging static electricity that might have built up on the hands during basic computer setup and cabling.

* **Touch earthed objects**
* **Use antistatic Wrest member.**

**(Award 1 mark each max 2)**

1. Mention four reasons to justify why solid-state storage devices are gaining popularity in modern computing.

* **Mass storage**
* **Ease of installation since most of them are plug and play.**
* **Fast**
* **Portability**
* **Energy efficient**
* **Not prone to mechanical failures**

**(Award 1 mark each max 4)**

1. Give a reason in each case to justify why the following rules must be observed when handling magnetic storage media.
2. Do not expose a magnetic media to strong magnetic field.

* **This would disorient the magnetic dipoles causing erasure of recorded data.**
* **(Award 2 marks max 2)**

1. Avoid exposing a magnetic media to excessive heat.

* **Heat energy leads to loss of magnetic strength in materials hence magnetically recorded data can easily get lost.**

**(Award 2 marks max 2)**

1. List three interfaces that can be used to link a printer and a computer.

* **Parallel cables**
* **Serial cable**
* **Network cables**
* **USB**
* **Bluetooth**
* **(Award 1 mark each max 3)**

2. Describe five functions of an operating system.

* **Error handling the operating system perform error check on both the hardware and software and suggest the solutions to the problem.**
* **Memory management the operating system divides memory into blocks and decide on what to be placed in memory at any given time.**
* **Interrupt handling the operating system study the cause of the interrupt then transfer control to the most appropriate program.**
* **Job scheduling the operating system give each task a fraction of the processor time then it will supervise how these tasks are processed one by one.**
* **Security operating system have several mechanisms of protecting data and programs such as password, backup etc.**

**(Award 1 mark each max 5)**

1. State three advantages of command line operating system

* **Execute extremely fast.**
* **Require less memory.**
* **Can work with monitors with low resolutions.**

**(Award 1 mark each max 3)**

1. List two items used to measure software Authenticity.

* **Availability of certificate of Authenticity**
* **Software License**
* **Product key**

**(Award 1 mark each max 3)**

1. Distinguish between Multitasking operating system and multiuser operating system.

* **Multitasking operating system execute more than one program apparently at the same time while multiuser operating system allows more than one user to interactively user the computer.**

**(Award 2 marks max 2)**

1. During a computer lesson a student switched on the computer but the computer failed to display the active GUI window instead it displayed an error message **Corrupted System Registry.**  Mention three ways of solving this error.

* **Repair the registry using emergency repair disk.**
* **Restore the registry backup.**
* **Reinstall the operating system.**

**(Award 1 mark each max 3)**

1. What is hot swapping?

* **Hot swapping is the replacement or addition of components to a computer system without stopping, shutting down, or rebooting the system.**

**(Award 2-mark max 2)**

1. Identify the type of peripheral interfacing cables shown in the table below.

|  |  |
| --- | --- |
|  | NAME |
| **HDMI cable** |
|  | NAME |
| **USB cable** |
|  | NAME |
| **SATA cable** |

**(Award 1 mark each max 3)**

1. State the difference between COM port and LPT port.

* **​COM port also known as a serial port transmits data bit by bit LTP port also known as a parallel port transmits multiple bits simultaneously at a time.**
* **(Award 2 marks max 2)**

1. Mention devices that can be connected to the computer by the following cables.
2. VGA

* **Monitor**
* **Projector**

1. SCIS

* **Hard disk**

1. PS/2

* **Mouse**
* **Keyboard**
* **(Award 1 mark each max 3)**

1. Explain master slave configuration as used in hard disk setup and configuration.

* **This is a concept used in setting hard drive on an EIDE controller that support up to two drives on a single ribbon where master drive is the main drive where the operating system resides while the slave is additional storage location.**

**(Award 2marks max 2)**

1. Kim connected new multimedia speaker to his computer and tried to play his favorite music from a memory card, but no sound was heard. Give three main causes of this problem.

* **Lack of the sound card**
* **Music files not supported.**
* **Multimedia speaker not properly connected.**
* **Missing music files from the memory card**
* **Memory card not properly inserted.**

**(Award 1 mark each max 3)**

1. Describe three items that a good warranty must cover.

* **Scope of coverage. This is how long the warranty agreement is supposed to last (The period for the warranty)**
* **Callout response and liability agreement. For example, how long should the supplier take to repair a fault or replace the product, and if he/she delays who bears the cost.**
* **Preventive Maintenance for example regularity of service, at intervals etc.**

**(Award 1 mark each max 3)**

1. Describe the following term as used computer software.
2. Vendor off-the shelf software

* **Refer to a software developed by experts or engineers then made available for purchase through distributors or vendors.**

1. Freeware

* **Freeware is software that is available for use at no monetary cost or for an optional fee, but usually closed source with one or more restricted usage rights.**

1. Open-source software

* **Open-source software is computer software that is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software and its source code to anyone and for any purpose.**

**(Award 1 mark each max 3)**

1. King James bought two computers for his office use the first computer was valued @34000 while the second one was valued @50000. Suggest three reasons that might have made the second computer to be more expensive (**3marks)**

* **The second computer may have a superior processing capability.**
* **The second computer may be small in size therefore easy to carry from one place to another.**
* **The second computer was a branded computer.**

**(Award 1 mark each max 3)**

1. Explain the following factors must be considered when purchasing a computer software **(**
2. Reliability

* **Consider buying a software that will function without crashing or hanging.**

1. Portability

* **A portable software is one that can be copied from one computer to another with ease.**

1. Compatibility

* **Purchase a software that will work in harmony with the existing hardware and software.**

1. User friendliness

* **Consider software that will take the user a shorter time to learn and use.**
* **(Award 1 mark each max 4)**

1. Mention three features that a computer must have to support multimedia capability fully.

* **Sound card**
* **Speakers**
* **Multimedia software**
* **Webcam/camera**
* **DVD drive**
* **SVGA monitor**
* **(Award 1 mark each max 3)**