MARKING GUIDE

SECTION A

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SECTION B (60 Marks)

1. (a). Give a concise explanation of the meaning of a computer system is

- A computer system is a collection of hardware, software and live ware (user) that work together to receive, process, manage and present information in a meaningful format.

(2 Marks)

(b). To identify/ to establish the features belonging to first generation computers that are different from the fourth generation by characteristics (try to compare)

- First computers used vacuum tubes for power distribution whereas……
- First generation computers were often big
- First generation computers produced a lot of noise
- First generation computers generated a lot of heat
- First generation computers could solve only one problem at a time
- First generation computers used magnetic drums for memory.
- First generation computers relied on machine language, the lowest-level programming language understood by computers, to perform operations, and
- First generation computers' input was based on punched cards and paper tape, and output was displayed on printouts.

(Any 3 x 1 = 3 Marks)

(c). To give a detailed account about digital computers.

- Digital computers are computers that perform calculations and logical operations with quantities represented as discrete (discontinuous) values.

(2 Marks)

(d). (i). Give the names of tools that can be used during system program design.

The following tools

- Flow chart
  - Is pictorial representation of an algorithm
  - A diagram of the sequence of operations carried out in an algorithm
Pseudo code
- A set of instructions written in a readable language but expressing the processing logic of a program
- Others include
  - Data flow diagrams
  - Entity relationship models
  - Structured charts
  - Decision trees
  - "Decision tables"

(ii). Outline (to describe briefly) activities carried out in the analysis stage of system development.
- System/project definition
- Feasibility study
- Needs assessment or problem identify and definition.
- Specify solution
- Establishment of information system requirements/fact finding
- System study. Looks at the problems of the existing system, defines the objectives the new system is to attain, and evaluates the various alternative solutions. Writes a system proposal report

(Any 2 x 1 = 02 Marks)

22. (a). Write the following acronyms in full
i. CMOS complementenary metal oxide semi-conductor
ii. POST power on self-test

(= 02 Marks)

(b). Specifications that can be looked at before buying a computer for home use.
- Storage capacity
- Memory size
- CPU/Processor speed
- Processor type
- Operating system
- Monitor resolution

(Any 2 x 1 = 02 Marks)

(c). (i). Distinguish between a hard copy and soft copy
- Hard copy is tangible output that is produced on papers using either printers or plotters.
- While soft copy is an electronic copy of some type of data, such as a file viewed on a computer's display or transmitted as an e-mail attachment.

(Both correct = 02 Marks)

(ii). Name two hardware devices designed to produce hardcopies.
- Printers
- Plotter

(Any 2 x 1 = 02 Marks)
(iii). Advantages of relying on softcopy files
- Easy to correct errors
- Easy to distribute online at once
- Easy to retrieve the files
- Cost effective
- Huge data fits in a small space and portable

(any 2 x 1 = 02 Marks)

23. (a)(i). The difference between a formula and a function?

- A formula in a spreadsheet is a mathematical equation (expression) used to calculate a value.
- A function is a pre-programmed (or pre-defined) formula used to carry out calculations if applied on data.

(both correct = 02 Marks)

(ii) Considerations when writing a spreadsheet function for data manipulation.
- Equal sign
- Brackets
- Range of cells
- Correct name of the function

(any 2 x 1 = 02 Marks)

(iii). Examples of logical functions in the spreadsheet.
- AND
- FALSE
- OR
- NOT
- IF

(any 2 x 1 = 02 Marks)

(b).

i. Appropriate primary key.
- Index number

(01 Mark)

ii. A formula that can be inserted in a form.
- =0.1*[school fees details]
- =10/100*[school fees details]

(01 Mark)

iii. Advantages of using electronic data base
- Can easily make changes
- Stores huge amount of data
- Data can be retrieved easily and quickly using DB object
- Easy management of data in different tables
- Can be distributed with ease
24. (a) (i). Types of physical topology.
   - Star topology
   - Bus topology
   - Ring topology
   - Mesh topology
   - Tree topology

   (any 2 x1=02 Marks)

(ii). Describe any one of the topologies mentioned in (a)(i) above.

   **BUS**
   - Is a network topology that consists of a main or central cable known as the backbone with a terminator at each end

   **RING**
   - Is network topology where all devices on the network are connected to one another in a shape of a closed loop so that each device is connected directly to other devices

   **STAR**
   - Is network topology which is designed with each device connected directly to the central network hub or switch or server

   **HIERARCHICAL**
   - Is an expanded star topology where different hubs are connected to each other

   **HYBRID**
   - Is a network topology that has two or more physical topologies connected to each other e.g. star and bus

   **MESH**
   - In the full mesh topology, each workstation is connected directly to each of the others. In the partial mesh topology, some workstations are connected to all the others, and some are connected only to those other nodes with which they exchange the most data.
TREE

- Is a network topology that combines characteristics of both star and bus topologies

(any 2 x 1=02 Marks)

(b). Explain the following terms

   i. Index page
      - Index page is the first page of the website

      (=01 Mark)

   ii. Bounded media
      - Bounded media are the physical links through which signals are confined to narrow path.
        Coaxial Cable, Twisted Pairs Cable, Fiber Optics Cable

      (=01 Mark)

   iii. Protocol
      - A set of rules that governs the data communication or exchange of data in two separate devices that are networked e.g. internet protocol, hypertext transfer protocol etc.

      (=02 Marks)

(c). Two services provided by file transfer protocol (FTP).

- Uploading files
- Downloading files
- Modifying files on networks
- Removing files

(any 2 x 1=02 Marks)

25(a). Distinguish the following presentation features

   i. Handouts and Layouts

      - Handouts are a presentation printouts containing more than one slide on a sheet that is distributed to the audience to supplement the oral presentation while lay outs are predefined ways in which content can be arranged on the slide

      (both correct =02 Marks)

ii. Transition effect and animation effect.

   - Transition effect is a feature that allows slides appear and disappear on the screen while animation effect is a feature that allows content move on the slide

      (both correct=02 Marks)

b).(i). Ways in which a word document page can be oriented

- Portrait orientation
- Landscape orientation

(any 2 x1=02 Marks)
(ii). Explain the term formatting
   • It is the act of enhancing/changing the appearance of text paragraph or a document.
   \[=0.1 \text{ Mark}\]

Three outstanding features
   • Bold
   • Drop cap
   • Text border
   • Superscript
   \[=\text{any } 3 \times 1 = 03 \text{ Marks}\]

26. (a). A computer port is a connection point or interface between a computer and an external or internal device.
   Computer port generally refers to the part of a computing device available for connection to peripherals such as input and output devices.
   \[=\text{any } 2 \times 1 = 02 \text{ Marks}\]

(b). Three examples of computer ports
   \[=\text{any } 3 \times 1 = 03 \text{ marks}\]
   i. PS/2 ports
   ii. Serial ports
   iii. VGA ports
   iv. USB ports
   v. LAN port/ Ethernet ports
   vi. Parallel ports
   vii. Audio ports
   viii. HDMI ports
   ix. SCSI ports

(C) A peripheral is a device that connects to a computer system to add functionality. WHILE computer hardware is the physical and tangible parts of a computer system, \(02\text{marks and the two sides must be correct for a candidate to earn } 02\text{marks}\)

(d). UPS in full: Uninterruptible Power Supply
   \(01\text{mark}\)

(e) Two basic functions of a UPS
   i. Power backup
   ii. Protects the computer from power surges
   \(02\text{marks}\)

SECTION C (20 marks)

27. Possible hardware causing the sluggishness
   • Memory RAM
   • Hard disk
   • Video card
   • Processor
   \[=04 \text{ mark}\]

(a) Give one reason for your choice of each of the hardware in (a) above
- **RAM** - holds computer programs when the processing is going on and its amount might have been low to allow hence slowing down the process.
- **HARD DISK** - internally stores files and programs in the computers. Its storage space might be small to allow creation of buffer to speed up the process.
- **VIDEO CARD** - is responsible for graphics and color application on the screen. Its capacity might have been too small to deal with heavy graphics in GUI.
- **PROCESSOR** - is the brain of the computer responsible for all processing activities, it might have been slow, of lower power to manage the processes taking place as fast as possible.

(4 x 2 = 08 marks)

(b) In which ways will you solve the problem of slow computer caused by hardware?

- Upgrade the RAM to increase its amount to handle activities faster.
- Delete some unwanted files from the hard disk to create more space that can be utilized during work in progress.
- Change the hard disk to a bigger capacity to hold more files programs and allow more processes.
- Move some files to external storage to reduce congestion on the internal storage.
- Defragment or compress files on the internal storage.
- Scan for viruses that might have occupied space on the hard disk to increase on storage space.
- Change the video card with a bigger capacity to accommodate more graphics.
- Upgrade the processor to a faster processor with more cores that can perform tasks faster.

28. (a) A head teacher was advised by a vendor to buy Category 6 Ethernet cable, Modem, Switch and a Repeater without the vendor explaining reasons for buying the devices. Inform the head teacher the importance of each of the devices.

- **CATEGORY 6 ETHERNET CABLE** - it will be used on wired networks to connect devices on local area networks such as PCs, routers, and switches. Instead of Wireless technologies like Wi-Fi and Bluetooth.
  - By contrast, most Ethernet cables are designed to connect one computer to a router or switch.

- **MODEM** - a device that converts signals produced by one type of device (such as a computer) to a form compatible with another (such as a telephone) and that is used especially to transmit and receive information between computers via landlines.
- **Modem**: A device that makes possible the transmission of data to or from a computer via telephone or other communication lines. Can allow connections to internet.

- **Switch**: A switch acts as a central connection point for end-user and network devices. A switch is also used to connect multiple computers together in a LAN segment.

- **Repeater**: A device that accepts a signal from a transmission medium, amplifies it and retransmits it over the medium.

(b) Give four reasons why Computers in the school should be networked.
- It lowers expenses on hardware and software e.g printers
- Software is easily upgraded via a server
- It allows multiple access to school database or internet
- Allows access to files as students and teachers can login from any workstation
- Collaboration learning is made possible
- Enables easy and faster communication
- Enables easy access to internet resources by students at the same time
- It creates improved security through centralized administration via server

29. a) Describe three maintenance practices to be done to your PC in the following stages.

i. Before using the computer
   - Check the connections
   - Clean the hardware
   - Detach the external storage before starting
   - Proper ventilation by opening windows or turning on AC

   (=03 Marks)

ii. During computer use
   - Refresh the system
   - Delete unwanted files
   - Scan external storage devices for viruses

   (=03 Marks)

iii. After computer use
   - Shut down the system normally
   - Remove external storage before closing
   - Cover the computer

   (=03 Marks)

iv. Assembling a computer
(b). After turning on the computer, you observed some signs of computer having viruses. Prepare a list of these signs that will help you when reporting to the laboratory technician.

- Some saved files are deleting without notice
- Some file formats are changed
- The computers speed has slowed down
- There is reduction in storage space even after some documents are removed
- Sometimes a computer takes long to close or open
- The computer keeps on hanging until it is shut down
- Some unwanted applications are loaded and run
- The computer displays unfamiliar graphics frequently which are irritating
- Sometimes there is failure to access a disk like flash disk
- Some files and folders are hidden without notice
- Error messages appearing more frequently on the screen than usual.
- Access lights turning on for non-referred devices.
- Unfamiliar sounds keep on appearing
- Reduction in memory available than usual on the hard disc.

(c). Suggest four measures that can be put to prevent computer virus spread.

- Install antivirus and regularly update
- Scan discs before use.
- Enforce strict policies on malware
- Block unwanted types of email
- Avoid networking computers or join secure networks
- Avoid automatic updates
- Scan suspected downloads from the internet
- Scan or avoid second-hand software installation
- Minimize use of foreign storage media