**COMPUTER STUDIES PAPER 1**

**WEEKLY TEST MARKING GUIDE**

**SECTION A**

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

**SECTION B**

21. (a) **Definition of computer evolution**

Computer evolution is the gradual development/improvement/modification/advancement/growth of computing devices/technology from simple to more complicated and advanced forms.

**NB: Deny marks for stages/generations. *02 marks***

(b) **The correct terms to complete the statements**

(i) Computer

(ii) Data processing

(iii) Data

(iv) Information

***Each 4x1=4 marks***

(c) **How computers are used in the following sectors**

(i) **Health**

* Disease diagnosis using computer based x-rays, ultrasound scan etc
* Carrying out computer based medical research over the internet
* For computerized accounting purposes and billing of patients
* Keeping records of patients in a computerized database.
* Computerized scheduling of medical staff on duty.
* Providing healthcare lessons to patients using digital notes
* Communication between medical staff and patients
* Computer assisted life savers
* Incubating machines for premature babies
* For carrying out complex operations on sensitive body organs
* For drug prescription
* Determination of DNA

***Any 2x1= 2marks***

(ii) **Security**

* For forensic computing as in gathering evidence from scenes of crime
* Used to monitor places using CCTV cameras
* Access control using biometrics devices
* Computer based recording keeping by security organs
* Communication using internet and mobile equipment in cases of security emergency
* Research on criminal cases using internet
* Computer guided fighter planes
* Monitoring of security situations by drones
* Weapon assembly by the military manufacturing firms
* Computer based alarm systems in homes and cars
* Detection and detonation of booms and dangerous items like landmines
* Tapping and tracking calls for security purposes
* Training and educating forces using simulated models
* Locating and launching missiles

***Any 2x1= 2marks***

22. (a) **Defining computer hardware**

Computer hardware refers to the physical or tangible parts of a computer. ***02 marks***

(b) Filling in the appropriate categories of hardware

|  |  |
| --- | --- |
| **Hardware device** | **Category** |
| 1. Compact Disc | **Storage** |
| 1. MODEM | **Communication** |
| 1. Projector | **Output** |
| 1. Barcode Reader | **Input** |

***Each 1x4=4 marks***

(c) **Explaining the functions of components**

(i) **Power Supply Unit**

* Steps down voltage
* Converts A.C voltage to D.C voltage
* Splits or distributes the voltage in different values as required by the components.

***Any 1x2= 2marks***

(ii) **ROM Chip**

* Permanently Store/hold manufacturers system instructions/information
* Used to hold instructions necessary for the booting of the computer.

***Any 1x2= 2marks***

23. (a) (i) **What a wild card is in database management system**

A **wild card** is a special character that can/used/combined/ stand for either a single character or a string of text in a query criteria or while searching for information.

That can be used to return/filter/generate results from a given query. ***02 marks***

(ii) **Importance of a wildcard in a query criterion**

* Useful when one wants the query to look for a given range of different possible values.
* Useful when one is not certain of what one is looking for but can give the query some clues to work with. ***Any 1x2= 2marks***

(iii) Naming examples of frequently used wildcards

* Asterisk (\*)
* Question (?)
* Percentage (%)
* Underscore ( \_ )
* Exclamation mark !
* Square brackets [] ***Any 1x1= 1mark***

(b) (i) Characteristics of label in a spreadsheet cell

* Labels are left aligned by default
* Labels are not subject to basic arithmetic operations/not used for basics calculations
* Labels go into quotations whenever in logical functions
* Labels are majorly text data ***Any 1x2= 2marks***

(ii) Outlining uses of electronic spreadsheets

* Data sorting or arranging, Data filtering
* Logical operations/functions
* Statistical operations/data analysis
* Financial and accounting operations
* Graphical representations/charting
* Data capture, import and export
* Editing and formatting of data  ***Any 1x3= 3marks***

24. (a) (i) **Ways of preventing access to information on the internet**

* Keyword blocking
* Site blocking
* Web rating systems
* Pass wording/parent control
* Registration and subscription to logins into the site as a member
* Financial restrictions to access content
* By encryption
* Using anti-virus software to block data from certain sites
* Putting down the site
* Using firewalls to filter information in a private network ***Any 2x1= 2marks***

(ii) **Reasons for preventing access to information on the internet**

* Prevent online crimes like bullying, fraud etc
* Limit or prevent access to illicit materials e.g. pornography
* For moral and ethical uprightness
* Limit or prevent unsolicited messages from filtering through
* Prevent piracy (illegal copying and duplication of information without authorization)
* Limit plagiarism by putting information in a format that cannot be easily changed
* Commercial benefits to promote copyright and property right.
* Offers privacy/confidentiality
* Preventing data alteration ***Any 3x1= 3marks***

(b) (i) **Explaining the term data transmission media**

These are communication lines or channels or path through which data is transferred from device to another.

Or channels used in transferring data/information *0****2marks***

(ii) **Listing examples of data transmission media**

* Infra red light
* Radio waves
* Micro waves
* Optical fiber cable
* Twisted pair cable
* Coaxial cable
* Or wireless/unguided/unbounded technology
* Cabled/guided/physical/tangible ***Any 3x1= 3marks***

25. (a) **Importance of features in word processing**

(i) **Footnote**

Helps in providing explanatory/ or clarifying notes comments about a concept or phrase used in a particular page of a document *0****2marks***

(ii) **Toggle case**

It helps the user to hurriedly change or switch case of text to upper case or lower case and vice versa. *0****2marks***

(b) **Distinction between cut and copy**

To cut is to move data or text or word from its original place to a new location/clipboard/buffer/

**While** Copy is to create an extra or duplicate copy of the data or file.

*(For both sides correct) 0****2marks***

(c) What presentation software is:

Is an application software/program used to create and display information or data in form of slides/slide show.

**(d) Outlining ways where presentation software may be used**•Advertising/promotion of products

•Publishing web contents  
•Presentation to large audience in seminars, workshops, conferences etc.  
•Business presentations  
•For teaching *Any 1x2= 2marks*

**26 (a) System considerations before installing windows operating system**

• System type based on bit/bus architecture (Type, Function, Purpose, Nature) e.g 64bit/32 bit

• CPU specification (type, speed)

• System manufacturer

• Size of hard disk

• Internal memory (RAM) size or capacity

• Disc drive and other ports ***Any 4 x 1 = 4 marks***

**(b) Reasons why a computer may be restarted**

• To clear a malware from memory/check for a virus

• To configure new software settings such that they interact well with the operating system

• To enable the system to recognize new hardware specifications/settings after installation

• Refresh the system

• To enable a hanging program to reorganize itself for a task ***Any 1 x 1 = 1 mark***

**(c) Explanation of the term device driver**⮚Device drivers are software programs that enable the computer system to communicate or interact well with connected system components or peripherals.  
⮚Computer program used to configure peripheral devices *02marks*

**(d) Forms of interfaces that can be provided by the operating system to the computer user**•Command line interface Or Command  
•Menu driven interface Or Menu  
•Graphical user interface Or Graphical

**SECTION C**

*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. AC main socket outlets
3. Uninterruptible Power Supply (UPS)
4. UPS power cable
5. System Unit
6. System Unit power cable
7. Monitor
8. Monitor power cable
9. Mouse
10. Keyboard
11. VGA cable

Describe how they can be assembled to make a complete functioning computer (08 marks)

(b) Outline the logical order of switching on the computer system, assembled in (a) above. (07 marks)

(c) Describing conditions that can lead to a computer system reboot (05 marks)

1. (a) With the use of **illustrations** explain the data transmission modes. (06 marks)

(b) With illustrations, explain any **five** Network topologies (10 marks)

(c) Explain the advantages of having a school Network (04 marks)

1. A computer system comprises of hardware, software, user, data and communication. With **examples**, describe **each** of the components.

**SOLUTION**

**27. (a) (08marks)**

* *Connect the Uninterruptible Power Supply (UPS) to the AC main socket outlets using UPS power cable*
* *Connect the System Unit to the UPS using the System Unit power cable*
* *Connect the Monitor to the UPS using Monitor power cable*
* *Plug the Mouse to the System unit*
* *Plug the Keyboard to the System unit*
* *Connect one end of the VGA cable to the System unit and another end of the VGA Cable to the Monitor.*

**(b) Outline the logical order of switching on the computer system, assembled in (a) above. (07marks)**

* *Switch on the power on the AC Main Socket outlet*
* *Switch on the UPS by long pressing the power button*
* *Switch on the monitor by pressing the power button*
* *Switch on the System unit by pressing the system unit power button*
* *Lastly the computer will go through the step by step boot process until the desktop of welcome screen is displayed.*

(c) Describing conditions that can lead to a computer system reboot (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

**28. (a) With the use of illustrations explain the data transmission modes.**  (06 marks)

(b) With illustrations, explain any **five** Network topologies (10 marks)

(c) Explain the advantages of having a school Network (04 marks)

**SOLUTION**

(a)**With the use of illustrations explain the data transmission modes.**  (06 marks)

A duplex communication system is a point-to-point system composed of two connected parties or devices that can communicate with one another in both directions. **An** **example of a duplex device is a telephone.**

A full-duplex (FDX) system, sometimes called double-duplex, allows communication in both directions simultaneously. **E.g. Land-line and Cell telephone networks** are full-duplex, since they allow both callers to speak and be heard at the same time.

A half-duplex (HDX) system provides communication in both directions, but only one direction at a time (not simultaneously). Once a party begins receiving a signal, it must wait for the transmitter to stop transmitting, before replying (antennas are of trans-receiver type in these devices, so as to transmit and receive the signal as well). **An example of a half-duplex system is a two-party system such as a walkie-talkie.**

Simplex is a communication that occurs in only one direction. **For example, Radio and Television broadcast, communication between a mouse and computer**

**(c) Explain the advantages of having a school Network (04 marks)**

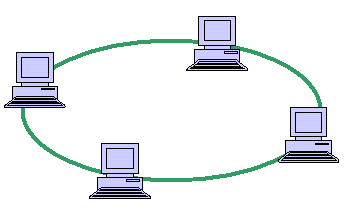
* Speed. Networks provide a very rapid method for sharing and transferring files.
* Cost. Networkable versions of many popular software programs are available at considerable savings when compared to buying individually licensed copies.
* Security. Files and programs on a network can be safe i.e. passwords can be established for specific directories to restrict access to authorized users. Sharing resources such as laser printers, fax machines, modems, scanners, etc. is simplified
* Electronic Mail. Electronic mail on a LAN can enable students to communicate with teachers and peers at their own school.
* Flexible Access. School networks allow students to access their files from computers throughout the school. Students can also work cooperatively through the network.

**(b) With illustrations, explain any five Network topologies (10 marks)**

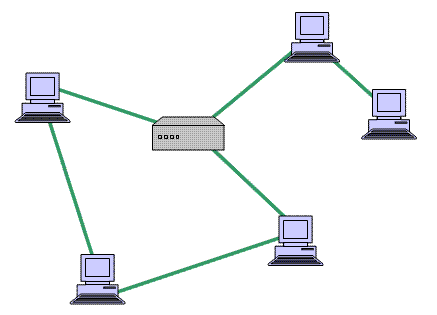
**(b)** Computer network topology is the way various components of a network (like nodes, links, peripherals, etc) are arranged. Network topologies define the layout, virtual shape or structure of network, not only physically but also logically. **1 mark**

**1** [**Ring**](http://en.wikipedia.org/wiki/Ring_network)**:** The ring network connects each node to exactly two other nodes, forming a circular pathway for activity or signals - a ring. The interaction or data travels from node to node, with each node handling every packet.

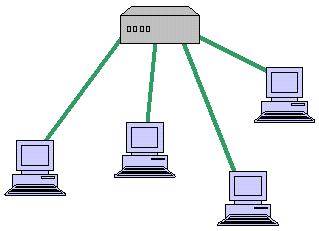
Diagram of ring topology



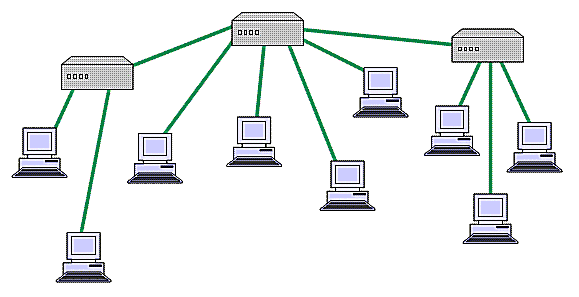
**2** [**Mesh**](http://en.wikipedia.org/wiki/Mesh_networking) is a way to route data, voice and instructions between nodes. It allows for continuous connections and reconfiguration around broken or blocked paths by “hopping” from node to node until the destination is reached.



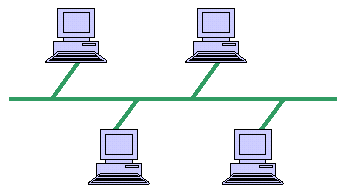
**3** [**Star**](http://en.wikipedia.org/wiki/Star_network)**:** The star network consists of one central element, switch, hub or computer, which acts as a conduit to coordinate activity or transmit messages.



**4** [**Tree**](http://en.wikipedia.org/wiki/Tree_and_hypertree_networks)**:** This consists of tree-configured nodes connected to switches/concentrators, each connected to a linear bus backbone. Each hub rebroadcasts all transmissions received from any peripheral node to all peripheral nodes on the network, sometimes including the originating node. All peripheral nodes may thus communicate with all others by transmitting to, and receiving from, the central node only.



5[**Bus**](http://en.wikipedia.org/wiki/Bus_network)**:** In this network architecture a set of clients are connected via a shared communications line, called a bus.



**Any 5 x1=5 marks , Explanation=1 mark, Any one diagram =1mark**

**29. A computer system comprises of hardware, software, user, data and communication. With examples, describe each of the components.**

|  |  |  |
| --- | --- | --- |
| **Hardware [04 Marks]** | | |
| Definition  **(Any 01 x 1 = 01mark)** | | * **Hardware devices** are the physical and tangible components of a computer. * **Hardware** comprises the electronic and the electromechanical parts of the computer. |
| Categories  **(Any 02 x 1 = 02 marks)** | | Input hardware  Processing hardware  Storage hardware  Output hardware  Communications hardware |
| Examples  **(Any 01 x 1 = 01 mark)** | | Monitor keyboard,  mouse,  CPU  Printer |
| **Software [04 Marks]** | | |
| Definition  **(Any 01 x 1 = 01mark)** | * **Software** is a term for electronic instructions that tell the computer how to perform a task. * These are a series of programs (instructions) that tell the computer what and how to work. | |
| Categories  **(Any 02 x 1 = 02 marks)** | Description: Description: Software Hierachy  **System software** manages the computer resources e  **Utility software** Utility software is a kind of system software designed to help analyze, configure, optimize and maintain the computer.  **Application software** solves the particular needs of the end user. | |
| Examples  **(Any 01 x 1 = 01 mark)** | System software – Operating systems - Windows XP, Vista, Windows 95  Programming languages – C+, Java Script, SQL  Utilities – Antivirus software, disk defragmenters, data recovery screensaver, etc.  Application software; Off the shelf (packed software) – MSOffice suite; Custom (tailor made) – school management system SMS | |

|  |  |  |  |
| --- | --- | --- | --- |
| **User [04 Marks]** | | | |
| Definition  **(Any 01 x 1 = 01mark)** | | **User** – the most important component of a computer system – used to design and develop computer systems, operate the computer hardware, create the software, and establish procedures for carrying out tasks.  User/human ware refers to the people who operate and initialize instructions to the computer system | |
| Categories  **(Any 01 x 1 = 01 mark)** | | **Ordinary user** - is someone without much technical knowledge of computers but uses computers to produce information for professional or personal tasks, enhance learning, or have fun.  **Professional user** -is a person in a profession involving computers who has had formal education in the technical aspects of computers; an example is: | |
| Examples  **(Any 02 x 1 = 02 marks)** | | * Computer programmer * System analyst * System administrator * Database administrator * Network administrator. * Secretary * Computer Students | |
| **Data [04 Marks]** | | | |
| Definition  **(Any 01 x 1 = 01mark)** | | **Data** refers to raw facts and figures that are processed into information.  **Data** data is anything in a form suitable for input into a computer for processing. | |
| Categories  **(Any 01 x 1 = 01 mark)** | | **Unprocessed data Like** Letters, digits and symbols (e.g., a, b, c, &, ...)  **Information** (Processed data)  Like a document, a mathematical formula, grades  a piece of music, a song etc. | |
| Examples  **(Any 02 x 1 = 02 mark)** | | Letters and symbols (e.g., a, b, c, &, ...)  words  Numbers/digits  Dates  Musical notes  Audio (sound), graphics,  Video, etc. | |
| **Communication [04 Marks]** | | | |
| Definition  **(Any 02 x 1 = 02mark)** | | This is the process of transferring data between computer systems or devices.  Linking up computer devices and computers  Enabling the flow of data  Enabling the flow of information  Enabling the flow of instructions  Networking of computers | |
| Categories  **(Any 01 x 1 = 01 marks)** | | Communication through computer networks:  Internet, Intranets  LAN, WAN  MAN, PAN, etc. | |
| Examples  **(Any 01 x 1 = 01 mark)** | | (communication media)  Modems  Cables  Computer  fax modems  routers  gateways | |

**END**