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# Paper Computer applications/Skills/ITC/CAB

# Semester summer

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**Question no 1**

1. **Differentiate between open source software and applications software?**
2. **Write different features of system software?**

**Answer to question no 1:**

***Part (A)***

* **open source software**

**Open-source software (OSS)** is a type of computer software where the source code is published under a license where the copyright owner uses, analyzes, corrects, and distributes the software for any purpose and for any purpose. Open source software can be developed in a collaborative manner. Open-source software is a well-known example of free collaboration.

Open-source software development can bring different perspectives than a single company. A 2008 Standish Group report states that the adoption of open-source software models saves customers approximately $ 60 billion (£ 48 billion) annually.

* **Applications software:**

Application software is a set of one or more programs, which solves a specific problem or does a specific task. For example, payroll processing software, photo editing software, Graphic designing software etc.

***Part (B)***

**Different features of system software**

**Important features of System Software are:**

* Software systems are closer to software systems
* Written in a low level language in general
* Software The system is difficult to design and understand
* Speed
* Less interactive
* Small in size
* Difficulty manipulating IP

**Question no 2:**

1. ***Discuss different functions of operating system?***
2. ***Explain the use of File Transfer Protocol and TelNet services?***

**Answer to question no2:**

***Part (A) Q no 2:***

**Functions of operating system**

Operating system is an integrated set of programs that controls the resources (CPU, memory, WO devices, e.t.c) of a computer system and provide its users with an interface that is easier to use.

The two primary objectives of an Operation system are:

* Make a computer system easier to use
* Manage the resources of a computer system

**Functions of an Operating System**

**Process Management:**

Process management module takes care of creation and deletion of processes, scheduling of system resources to different processes requesting them, and providing mechanisms for synchronization and communication among processes.

**Memory Management**

Memory management module takes care of allocation and de-allocation of memory space to programs in need of this resource

**File Management**

File management module takes care of file-related activities such as organizations, storage, retrieval, naming. Sharing and protection of files

**Device Management**

The device management module of an operating system controls all I/O devices. It Keeps processes, issues commands to l/O devices, and ensures correct data transmission to from an I/O device.

**Security:**

Security module protects the resources and information of a computer system against destruction and unauthorized access.

***Part (B) Q no 2:***

***Use of File Transfer Protocol and TelNet services***

FTP is a widely used network protocol for transferring files between computers via TCP / IP based networks such as the Internet. FTP allows people and applications to exchange and share data at their office and across the Internet.

***File Transfer Protocol (FTP)***

File Transfer Protocol(FTP) service enables an internet user to move a file from one computer to another on the internet. A file may contain any type of digital information, text document, image, artwork, movie, sound, software etc. FTP has two basic services

1. ***Downloading***

The process of moving a file from remote computer to one's own computer

1. **Uploading**

The process of moving a file from one's own computer to a remote computer

**In FTP service, a file transfer takes place in following manner:**

* A user executes ftp command on his/her local computer, specifying address of the remote computer.
* An FTP process running on user's computer establishes a connection with an FTP process running on remote computer.
* The system then asks the user to enter his/her login name and password on the remote computer to ensure that the user possess permission to access the remote computer.
* After successful login, the user downloads or uploads the desired files).

Note that a user needs access rights for a remote computer to transfer files to/from it. With this restriction, it is almost impossible to provide access rights to the large number of users on the internet to a computer that contains sharable information. The concept of anonymous FTP site solves this problem.

***Telnet services***

Telnet service enables an internet user to log in to another computer on the internet from his/her local computer. That is, a user can execute the telnet command on his/her local computer to start a login session on a remote computer. This action is also called "remote login"

To start a remote login session, a user types telnet command and address of the remote computer on his/her local computer. The remote computer then authenticates the user by asking him/her to enter a login name and password. If the user specifies a correct login name and password, the remote computer logs in the user and telnet command then enters input mode. From now onwards, anything that the user types on the local computer is sent to the remote computer for processing

***Some common uses of telnet service are:***

* For using computing power of a remote computer
* For using some software on a remote computer, which is not available on user's local computer.
* For logging in to one's own computer from another computer.

**Question no 3**

1. ***Explain Metropolitan Area Network (MAN) with a suitable example?***
2. ***Define topology? Which topology would you chose to setup a local area network and why?***

**Answer to question no 3:**

***Part (A)***

 ***Metropolitan Area Network (MAN)***

* Signed to extend over a district, council or even an entire city.
* It may be a single network such as a cable television network, or it may be a means of connecting a number of LANs into a larger network so that resources may be shared LAN-to-LAN as well as device-to-device.

**For example**

* A company can use a MAN to connect the LANs in all of its offices throughout a city.
* Examples of metropolitan area networks of various sizes can be found in the metropolitan areas of London, England; Lodz, Poland; and Geneva, Switzerland. Large universities also sometimes use the term to describe their networks. A recent trend is the installation of wireless MANs

***Part (B) Q no 3***

**Define topology**

The network Topology Consistent patterns of network elements. A network topology can be physical, hardware configuration mapping or, logically, mapping of the path the data must take to travel around the network.

There are many defined topologies but they are not strict, which means any one of them can be combined. However, each topology has different values ​​and can use different hardware methods so that they are not interchangeable.

***Which topology would you chose to setup a local area network and why***

I will choose the STAR topology because the star network is a local area network in which all devices are directly linked to a central point called a hub. Star topology looks like a star but not exactly a star. Star Topology is a network structure consisting of a central node to which all other devices are directly connected and to which all other devices are connected. The hub, leaf nodes and transmission lines between them form a graph with a star topology.

STAR is one of the most common and oldest common topologies in the local area network. Star topology design originates from telecommunication systems. All phone calls in the telephone system are handled by the central switching station. Like the star topology, each network workstation is connected to a central node known as a hub. A hub is a device that connects the entire linking medium. It is responsible for managing all network activities. It also acts as a repeater of data flow. You usually need a hub when building a network using two or more computers. It is possible to connect two computers directly to each other without the need for a hub, but when connecting a third computer to a network, we need a hub to communicate accurate information across the network.

***Advantages of star topology***

* **easily add new computers/devices to the network without interrupting other nodes**
* **If any cable is not working then the whole network will not be affected**
* **Isolation of devices**
* **Simplicity**
* **Centralization**
* **Easy to troubleshoot**
* **Better performance**
* **Easy installation**

**Question no 4:**

***In your opinion, what are the different types of common media used for storage, access and transmission of information? Explain each type in detail?***

**Answer to question no 4:**

***Different types of common media used for storage, access and transmission of information***

***Types of common media***

1. Media is something that can be used for presentation of information.
2. Two basic ways to present some information are:
* ***Unimedia presentation***

Single media than is used to present information

* ***Multimedia presentation***

More than one media is used to present information

***Common media for storage, access, and transmission of information are***:

1. Text (alphanumeric characters)
2. Graphics (line drawings and images)
3. Animation (moving images)
4. Audio (sound)
5. Video (Videographer real-life events)
6. Multimedia in information technology refers to use of more than one of these media for information presentation to users
7. ***Text (alphanumeric characters)***
* Alphanumeric characters are used to present information in text form. Computers are widely used for text processing
* Keyboards, OCRs, computer screens, and printers are some commonly used hardware devices for processing text media
* Text editing, text searching, hypertext, and text importing/exporting are some highly desirable features of a multimedia computer system for better presentation and use of text information
1. ***Graphics (line drawings and images)***
* Computer graphics deals with generation, representation, manipulations, and display of pictures line drawings and images) with a computer
* Locating devices (such as u mouse, a joystick, or a stylus), digitizers, scanners, digital cameras, computer screens with graphics display capability, laser printers, and plotters are some common hardware devices for processing graphics media
* Some desirable features of a multimedia computer system are painting are drawing software, screen capture software, screen capture, graphics importing, and software support for high resolution.
1. ***Animation (moving images)***
* Computer animation deals with generation, sequencing and display (at a specified rate) of a set of images (called frames) to create an effect of visual change or motion, similar to a movie film (video)
* Animation is commonly used in those instances where videography is not possible or animation can better illustrate the concept than video.
* Animation deals with displaying a sequence of images at a reasonable speed to create an impression of movement. For a jerk-free full motion animation, 25 to 30 frames per second is required.
1. ***Audio (sound)***
* The computer audios are deals with synthesizing, recording, and playback of audio or sound with a computer.
* Sound board, microphone, speaker, MDI devices, Sound synthesizer, sound editor and audio mixer are some commonly used hardware devices for procession audio media
* Some desirable features of a multimedia computer system are audio Claps, audio file importing, software support for high quality sound, recording and playback capabilities, text-to-speech conversion software, speech-to-text conversion software, and voice recognition software
1. ***Video (Videographer real-life events)***
* Computer videos deal with recording and display of sequence of images at a reasonable speed t0 create an impression of movement. Each individual image off such a sequence is called a frame
* Video camera, video monitor, video board, and video editor are some of the commonly used hardware devices for processing video media.
* Some desirable features of a multimedia computer system with video facility are video clips and recording and playback capabilities

Stay home**,**stay Safe