J. BASKARAN M.Sc., B.Ed. (C.S)
jbaskaran89@gmail.com

J. ILAKKIA M.Sc., M.Phil., B.Ed. (C.S)
jilakkia@gmail.com

COMPUTER APPLICATIONS
4. THEORETICAL CONCEPTS OF OPERATING SYSTEM
SECTION – A

Choose the correct answer:

1. Operating system is a

a) Application Software b) Hardware c) **System Software** d) Component

2. Identify the usage of Operating Systems

a) Easy interaction between the human and computer b) Controlling input & output Devices

c) Managing use of main memory d) **All the above**

3. Which of the following is not a function of an Operating System?

a) Process Management b) Memory Management

c) Security management d) **Complier Environment**

4. Which of the following OS is a commercially licensed Operating system?

a) **Windows** b) UBUNTU c) FEDORA d) REDHAT

5. Which of the following Operating systems support Mobile Devices?

a)Windows 7 b)Linux c) BOSS d) **iOS**

6. File Management manages

a) Files b) Folders c) Directory systems d) **All the Above**

7. Interactive Operating System provides

a) **Graphics User Interface (GUI)** b) Data Distribution

c) Security Management d) Real Time Processing

8. Android is a

a) Mobile Operating system b) Open Source

c) Developed by Google d) **All the above**

9. Which of the following refers to Android operating system's version?

a) **JELLY BEAN** b) UBUNTU c) OS/2 d) MITTIKA

SECTION-B

Short Answers

1. What are the advantages of memory management in Operating System?

* Keeping track of which portion of memory are currently being used and who is using them.

* Determining which processes (or parts of processes) and data to move in and out of memory.

* Allocation and de-allocation of memory blocks as needed by the program in main memory. (Garbage Collection)

2. What is the multi-user Operating system?

Multi-user Operating system is used in computers and laptops that allow same data and applications to be accessed by multiple users at the same time. The users can also communicate with each other.

Example: Windows, Linux and UNIX

3. What is a GUI?

The GUI is a window based system with a pointing device to direct I/O, choose from menus, make selections and a keyboard to enter text. Its vibrant colours attract the user very easily.

4. List out different distributions of Linux operating system.

There are a few different distributions of Linux, like Ubuntu, Mint, Fedora, RedHat, Debian, Google's Android, Chrome OS, and Chromium OS which are popular among users.

5. What are the security management features available in Operating System ?

The Operating System provides three levels of securities to the user end. They are File access level, System level, Network level

6. What is multi-processing?

Multi-processing is a one of the features of Operating System. It has two or more processors for a single running process (job). Processing takes place in parallel is known as parallel processing. Each processor works on different parts of the same task

7. What are the different Operating Systems used in computer?

Some of the popular Operating Systems used in personal computers and laptops are Windows, UNIX and Linux.

The different Operating Systems used in computer are:

* Single User Operating Systems* Multi-user Operating Systems* Distributed Operating Systems

SECTION-C

Explain in Brief

1. What are the advantages and disadvantages of Time-sharing features?

Advantages	Disadvantages
In time sharing systems all the tasks are given specific time and task switching time is very less so applications don't get interrupted by it.	The big disadvantages of time sharing systems is that it consumes much resources so it need special operating systems.
Many applications can run at the same time. You can also use time sharing in batch systems if appropriate which increases performance.	Switching between tasks becomes sometimes sophisticated as there are lot of users and applications running which may hang up the system
Provides the advantage of quick response, Avoids duplication of software, Reduces CPU idle time.	Problem of reliability, Question of security and integrity of user programs and data, Problem of data communication

2. Explain and List out examples of mobile operating system.

* A mobile operating system controls a mobile device and its design supports wireless and communication and different types of mobile applications.

* It operates such as phones, tablets and MP3 players are different from desktop and laptop computers and hence they need special Operating Systems

Android : Android is a mobile operating system developed by Google, based on Linux and designed primarily for touch screen mobile devices such as smart phones and tablets.

iOS - iPhone OS : It is the Operating System that presently powers many of the company's mobile devices, including the iPhone, iPad and iPod Touch.

3. What are the differences between Windows and Linux Operating system?

Windows	Linux
Windows is a licensed operating system in which source code is **inaccessible.**	**Linux** is a free and open source operating system based on Unix standards.
Windows Series - for desktop and laptop computers.	Linux - Open source Operating System for desktop and server.
Microsoft Windows is one of the most popular Graphical User Interface (GUI).	Linux is one of the popular Open Source versions of the UNIX Operating System.
Windows must boot from the primary partition.	Linux it can be booted from either primary or logical partition.

4. Explain the process management algorithms in Operating System.

* Process management is function that includes creating and deleting processes and providing mechanisms for processes to communicate and synchronize with each other.

* The following algorithms are mainly used to allocate the job (process) to the processor, SJF, Round Robin, Based on Priority

FIFO (First In First Out) : This algorithm is based on queuing technique.

SJF (Shortest Job First) : This algorithm works based on the size of the job being executed by the CPU.

Round Robin : The Round Robin (RR) scheduling algorithm is designed especially for time sharing systems.

Based On Priority: The given job (process) is assigned based on a Priority.

SECTION - D

Explain in detail

1. Explain the concept of a Distributed Operating System.

* This feature takes care of the data and application that are stored and processed on multiple physical locations across the world over the digital network (internet/intranet).

* The Distributed Operating System is used to access shared data and files that reside in any machine around the world. The user can handle the data from different locations. The users can access as if it is available on their own computer.

Figure: 4.4 Distributed Operating Systems

The advantages of distributed Operating System are as follows:

* A user at one location can make use of all the resources available at another location over the network.

* Many computer resources can be added easily in the network

* Improves the interaction with the customers and clients.

* Reduces the load on the host computer.

2. Explain the main purpose of an operating system.

* Operating System has become essential to enable the users to design applications without the knowledge of the computer's internal structure of hardware. Operating System manages all the Software and Hardware. Operating System manages all the Software and Hardware.

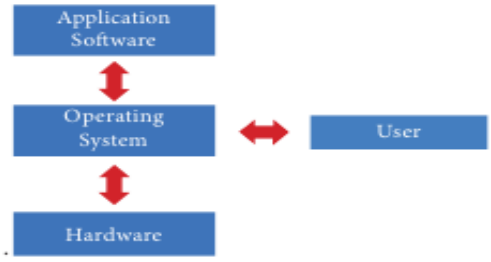

Figure: 4.2 Interaction of Operating system and user

* Most of the time there are many different computer programmes running at the same time, they all need to access the Computers, CPU, Memory and Storage.

* The need of Operating System is basically - it is the interface between the user and hardware. Operating System converts processed information into user readable form

*To ensure that a computer can be used do to exact if what the user wants it do.

* Easy interaction between the users and computers.

* Starting computer operation automatically when power is turned on (Booting).

* Controlling Input and Output Devices

* Manage the utilization of main memory.

* Providing security to user programs.

3. Explain advantages and disadvantages of open source operating systems.

Advantages:

* Open-source software is free to use, distribute, and modify. It has lower costs, and in most cases this is only a fraction of the cost of their proprietary counterparts.

* Open-source software is more secured as the code is accessible to everyone. Anyone can fix bugs as they are found, and users do not have to wait for the next release.

- Lower costs?
- No vendor lock-in
- Increased potential of adaptation and innovation
- Highly interactive if you wish to network with greater community
- Reduction in time and effort if you just want to be a consumer
- Quality of software
- Security
- Easier to locate and fix “bugs”
- Creativity

Disadvantages

* The main disadvantage of open-source software is not being straightforward to use. Open-source operating systems like Linux cannot be learned in a day.

* There is a shortage of applications that run both on open source and proprietary software; therefore, switching to an open-source platform involves a compatibility analysis of all the other software used that run on proprietary platforms.

- Not as user friendly as commercial software
- Adequate support from IT department?
- OSS is a work-in-progress
- Lack of technical ability
- Fear of the unknown
- Institutional and organizational procurement process affecting the decision making process