

# Computer Science (Python) – Software Concepts

## TOPIC – 1 Software Basics

### Very Short Answer type Questions [1 mark each]

#### Question 1:

Name any two popular word processing software.

#### Answer:

Two popular word processing software are :

1. OO-writer
2. MS-word

#### Question 2:

Expand OS.

#### Answer:

OS stands for Operating System.

#### Question 3:

Name the categories in which the software are classified.

#### Answer:

Software are classified into following two categories :

1. System software
2. Application software

#### Question 4:

Name the various categories of system software.

#### Answer:

System software are divided into following two categories :

1. Operating system
2. Language processor

#### Question 5:

Expand DBMS.

**Answer:**

DBMS stands for Data Base Management System.

**Question 6:**

What is the full form of DTE

**Answer:**

DTP stands for Desk Top Publishing.

**Question 7:**

Expand IOCS.

**Answer:**

IOCS stands for Input-Output Control System.

**Question 8:**

Write the name of the part of machine level instruction, which tells the central processor what has to be done.

**Answer:**

Operation code.

**Question 9:**

A system program that combines the separately compiled modules of a program into a form suitable for execution.

**Answer:**

Linking loader.

**Question 10:**

Which system software does the job of merging the records from two files into one ?

**Answer:**

Utility program.

**Question 11:**

A computer cannot “boot” if it does not have the\_\_\_\_\_.

**Answer:**

Operating system.

**Question 12:**

Write the name of the system program that sets up an executable program in the main memory ready for execution.

**Answer:**

Loader.

**Question 13:**

What do you mean by FIFO algorithm ?

**Answer:**

It means execute first job that is entered first in the queue. It stands for First In First Out algorithm. 1

**Question 11:**

What do you mean by bug ?

**Answer:**

A bug is logical error in a program.

**Short Answer type Questions – I [2 mark each]**

**Question 1:**

Define Software. Give its types.

**Answer:**

Software represents the set of programs that controls the operation of a computer system and utilizes hardware.

Software are of two types :

1. System Software
2. Application Software.

**Question 2:**

What is system software ? What are its components ?

**Answer:**

System Software : The software which controls the internal operations of the computer and creates an interface with software and hardware is known as system software.

The system softwares can be divided into two categories :

1. Operating system
2. Language processors

**Question 3:**

What do you mean by operating system ?

**Answer:**

Operating System is a software program which manages the hardware and software resources and links them. It creates an interface between hardware and software. It is a bridge between the hardware and the software.

**Question 4:**

What do you mean by graphics software ?

**Answer:**

Graphics software is the application software which can manipulate images, known as graphics software. The graphics software can incorporate images, text, sound, animation and video sequence.

**Question 5:**

Name the various categories of application software.

**Answer:**

Application software can be divided into following three categories :

1. Packages
2. Utilities
3. Customized Software

**Question 6:**

Name the major categories of packages.

**Answer:**

Following are the major categories of packages :

1. Word processing software
2. Database management software
3. Spreadsheets
4. Desktop publishing software
5. Graphics, multimedia and presentation applications.

**Question 7:**

Explain utility program.

**Answer:**

A program that performs a specific task related to the management of computer functions, resources, or files as password protection, memory management, virus protection, and file compression.

**Question 8:**

Give examples of utility programs.

**Answer:**

some examples of utility programs are :

1. Virus scanners
2. Disk defragmenters
3. Encryption utilities
4. Backup software

**Short Answer type Questions – II [3 mark each]****Question 1:**

Explain operating system and utility system software.

**Answer:**

Operating systems are essential for running a computer. However, as part of the operating system, there are often other programs which are not essential to the running of the computer. These are known as utilities. If they were not there, they would not affect the working of the computer. 3

**Question 2:**

How does the application software and operating system work together ?

**Answer:**

When we use a program, it sends commands to the computer. But the computer is just a heap of nuts and bolts and computer chips. It can't understand the commands by itself. So the operating system catches the commands and tells the computer what you want it to do.

**Question 3:**

What are open source software ? Give its examples.

**Answer:**

Open source software is that computer software whose source code is made available with a license in which the copyright holder provides the rights to read, change and distribute the software for any purpose. For example : Linux, Unix etc.

**Question 4:**

What are the criteria of software development industry to consider a software as open source software ?

**Answer:**

For a software to be considered as open source software it should meet certain criteria, they are :

1. It should be available free or at low cost.
2. Source code must be included.
3. Everyone should be allowed to edit the source code.
4. Modified versions can be redistributed.

**Question 5:**

What are Freeware ? Give its examples.

**Answer:**

It generally refers to the software which re available for use at no cost or for an optional fee to avail all the functions of the software. For example : WordPad, Paint, Notepad etc.

**Question 6:**

What are Shareware ? Give its examples.

**Answer:**

It is that software which is made available with a right to redistribute copies. It is also known as “Try Before You Buy.” For example : wondershare, Kaspersky antivirus etc.

**Question 7:**

What are Proprietary Software ? Give its examples.

**Answer:**

It is a software which is owned by an individual or a company. Their source code is always kept secret. For example : Microsoft windows, adobe flash player etc.

**Long Answer type Questions [4-5 mark each]**

**Question 1:**

What are the functions of a file system ?

**Answer:**

The major functions of a file system are given below :

1. It provides file naming freedom to the users and permits controlled sharing of files.
2. It provides long and short term storage of files.
3. It provides security against loss of information due to system failure.

4. It also provides file recovery modules, if required. [1 mark for each point]

**Question 2:**

Define following with examples :

1. Word processing packages
2. Spreadsheet packages
3. DBMS packages.

What are the functions of a file system ?

**Answer:**

1. Word processing packages : It is a software package that processes textual matter created to a right to redistribute copies. It is also known as “Try Before You Buy.” For example : wondershare, Kaspersky antivirus etc. organize an error free document. Some popular word processing packages are Wordstar, MS- WORD, Word Perfect, Softword etc.
2. Spreadsheets packages : It is a software package that accepts data in a tabular form i.e., in rows and columns and allows the user to manipulate, calculate, edit and analyze the data in the required manner. Some popular spreadsheet packages are, LOTUS 1-2-3, MS-Excel and Quattro Pro.
3. Data base management software (DBMS) packages : A DBMS package is a software package which manages the different database with home bulk information in the form of data. It can manage, add, delete and modify the database. Examples : FoxPro, FOXBase, SYBase, Dbase IV & MS-Access etc.

**TOPIC-2**  
**Operating System(OS)**

**Very Short Answer type Questions [1 mark each]**

**Question 1:**

Expand the term ROM-BIOS.

**Answer:**

ROM-BIOS stands for Read Only Memory-Basic Input Output System.

**Question 2:**

What do you mean by POST ?

**Answer:**

POST—Power On Self-Test.

**Question 3:**

What are executable files ?

**Answer:**

Executable files are those files that can directly be executed by the command processor. The files with extension, exe or com are known as executable files.

**Question 4:**

Expand GUI.

**Answer:**

GUI stands for Graphical User Interface.

**Question 5:**

Why GUI is used ?

**Answer:**

GUI is used as an interaction between software and the user.

**Question 6:**

Does MS-Windows provides GUI ?

**Answer:**

Yes, MS-Windows provides GUI.

**Question 7:**

What is MS-DOS ?

**Answer:**

MS-DOS stands for Microsoft Disk Operating System. It is a Command User Interface (CUI), single user multi-tasking operating system.

**Question 8:**

What is considered as a file manager in Windows 98?

**Answer:**

Windows Explorer is considered as a file manager in Windows 98.

**Question 9:**

What happens to the files when they are deleted ?

**Answer:**

When files are deleted, they move to Recycle Bin.

## Short Answer type Questions – I [2 mark each]

### Question 1:

Define Operating system. Give the names of any three operating systems.

#### Answer:

Operating System is defined as a collection of programs that coordinates the operations of computer hardware and software. It acts as a bridge or interface between man and machine. Operating system is a system software which is mandatory for all computer systems to operate. It is a general purpose software. Some commonly used operating systems are Windows, BOSS etc.

### Question 2:

Explain I/O System Management

#### Answer:

I/O system hides the peculiarities of specific hardware devices from the user. Only the device driver knows the peculiarities of the specific device to which it is assigned.

### Question 3:

Why the different versions of DOS are required ?

#### Answer:

With the invention of new hardware devices, an up gradation is required in the system software i.e., operating system. It develops a need of upgraded versions of DOS.

### Question 4:

Differentiate between internal commands and external commands of DOS.

#### Answer:

Internal commands are those that are directly interpreted by the command processor command, com.

Whereas, external commands are those that are interpreted with the help of external files with extensions.com or .exe.

### Question 5:

Name some of the icons available on windows.

#### Answer:

Some of the icons available on windows are:

1. Application icons

2. Shortcut icons
3. Documents icons
4. Disk-Drive icons.

**Question 6:**

What is the difference between MS-Windows and MS-DOS ?

**Answer:**

MS-WINDOWS is a GUI (Graphic User Interface), single user multitasking operating system.

Whereas, MS-DOS is a CUI (Command User Interface) single user multi-tasking operating system.

MS-Windows is more user friendly in comparison to MS-DOS.

**Short Answer type Questions – II [3 mark each]**

**Question 1:**

Write the objectives of operating system.

**Answer:**

(a) To hide details of hardware by creating abstraction : An abstraction is software that hides lower level details and provides a set of higher- level functions.

(b) To allocate resources to processes (manage resources) : An operating system controls how processes (the active agents) may access resources (passive entities).

(c) Provide a pleasant and effective user interface : The user interacts with the operating systems through the user interface and usually interested in the “look and feel” of the operating system.

**Question 2:**

Write the general goals of scheduling.

**Answer:**

- (a) Fairness
- (b) Policy enforcement
- (c) Efficiency
- (d) Response time
- (e) Turnaround time
- (f) Throughput

**Question 3:**

Define Race Conditions.

**Answer:**

In operating systems, processes that are working together share some common storage (main memory, file etc.) that each process can read and write. When two or more processes are reading or writing some shared data and the final result depends on who runs precisely, when, are called race conditions.

**Question 4:**

Explain real-time operating system.

**Or**

Write a short note on real-time operating system.

**Or**

Write a short note on RTOS.

**Answer:**

A real-time operating system (RTOS) is an operating system that guarantees a certain capability within a specified time constraint. For example, an operating system might be designed to ensure that a certain object was available for a robot on an assembly line.

**Question 5:**

Explain multi-user operating system.

**Or**

Write a short note on multi user operating system.

**Answer:**

It is the type of operating system that allows many users to take the advantage of computer's resources simultaneously.

For example : UNIX, VMS etc.

**Question 6:**

Explain single user operating system.

**Or**

Write a short note on single user operating system.

**Answer:**As it is clear from the name single user operating system is designed for one user to effectively use a computer at a time.

For example : Windows 2007, Windows 8 etc.

**Question 7:**

What is an operating system and how are they classified on the basis of interaction ?

**Answer:**

Operating System is defined as a collection of programs that coordinates the operations of computer hardware and software. It acts as a bridge or interface between man and machine. Operating system is a system software which is mandatory for all computer systems to operate. It is a general purpose software. On the basis of interaction, operating systems are divided in two types :

1. GUI(Graphical user interface) based.
2. CUI(Character user interface) based.

**Question 8:**

Explain Sun Solaris.

**Or**

Write a short note on OS which is developed by the Sun Company.

**Answer:**

Sun Solaris also known as SunOS or Sun it is the name of the Sun company's Unix variant operating system that was originally installed on SPARC computers. It is sold together with the OPENLOOK user interface Open Windows. This bundle is known as Solaris.

**Question 9:**

Give any six advantages of UNIX.

**Answer:**

1. Full multitasking with protected memory.
2. Available on a wide variety of machines
3. A rich set of small commands and utilities that do specific tasks well.
4. Ability to string commands and utilities together in unlimited ways to accomplish more complicated tasks.
5. Optimized for program development, and thus for the unusual circumstances that are the rule in research.
6. A powerfully unified file system. Everything in a file : data, programs and all physical devices.

**Question 10:**

Write any three disadvantages of UNIX.

**Answer:**

1. The traditional command line shell interface is user hostile, i.e., designed for the programmer, not the casual user.
2. Commands often have cryptic names and give very little response to tell the user what they are doing. Much use of special keyboard characters-little types have unexpected results.
3. To use Unix well, you need to understand some of the main design features. Its power comes from knowing how to make commands and programs interact with each other, not just from treating each as a fixed black box.

**Question 11:**

Give any three advantages of windows.

**Answer:**

The three advantages of windows are as follows :

1. Microsoft has made several advancements and changes that have made it much easier to use operating system, and although arguably it may not be the easiest operating system, it is still easier than Linux.
2. Because of the large amount of Microsoft windows users, there is a much larger selection of available software programs, utilities, and games for windows.
3. Microsoft windows includes its own help section, has vast amount of available online documentation and help, as well as books on each of the versions of windows.

**Question 12:**

Give three disadvantages of Windows.

**Answer:**

The three disadvantages of windows are as follows :

1. Microsoft Windows can run between \$ 50.00 – \$150.00 US dollars per each license copy.

2. Although Microsoft Windows has made great improvements in reliability over the last few versions of Windows, it still cannot match the reliability of Linux.
3. Although Windows does have software programs, utilities, and games for free, the majority of the programs will cost anywhere between \$20.00 – \$200.00+ US dollars per copy.

**Question 13:**

Explain Bharat Operating System Solutions.

**Answer:**

Bharat Operating System Solutions (BOSS) is a free and open source computer operating system developed by the National Resource Centre for Free/Open Source Software (NRCFOSS) of India. This software is also known by the acronym BOSS GNU/Linux or simply BOSS Linux. The latest version of this operating system, BOSS GNU/Linux Version 5.0, was released in August 2013. This software package has been described as “India’s own PC operating system” the most meaningful product to come out of the Indian software industry in decades and a work that a government department has done. The software has also been endorsed by the Government of India for adoption and implementation on a national scale.

**Question 14:**

Explain Android.

**Answer:**

1. Android is a Linux-based operating system for mobile devices such as smartphones and tablet computers. It is developed by the Open Handset Alliance, led by Google, and other companies.
2. Google purchased the initial developer of the software, Android Inc., in 2005. The unveiling of the Android distribution in 2007 was announced with the founding of the Open Handset Alliance, a consortium of 86 hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices. Google releases the Android code as open-source, under the Apache License. The Android Open Source Project (AOSP) is tasked with the maintenance and further development of Android.
3. The first phone of lun on the Android OS was the HTC Dream which was launched on 22nd October 2008.

**Question 15:**

Explain Symbian operating system.

**Answer:**

Symbian is a mobile operating system (OS) and computing platform designed for smartphones and currently maintained by Accenture. The Symbian platform is the successor to Symbian OS and Nokia Series 60; unlike Symbian OS, which needed an additional user interface system, Symbian includes a user interface component based on S60 5th Edition. The latest version, Symbian—3, was officially released in Q4 2010, first used in the Nokia N8. In May 2011 an update, Symbian Anna, was officially announced, followed by Nokia Belle (previously Symbian Belle) in August 2011. Symbian OS was originally developed by Symbian Ltd. It is a descendant of Psion's EPOC and runs exclusively on ARM processors, although an unreleased x86 port existed.

**Answer type Questions – [4-5 mark each]****Question 1:**

Explain process management.

**Or**

What do you mean by processor management of operating system ?

**Answer:**

The operating system manages many kinds of activities ranging from user programs to system programs like printer spooler, name servers, file server etc. Each of these activities is encapsulated in a process. A process includes the complete execution context (code, data, PC, registers, OS resources in use etc.). The five major activities of an operating system in regard to processor management are :

1. Creation and deletion of user and system processes.
2. Suspension and resumption of processes.
3. A mechanism for process synchronization
4. A mechanism for process communication.
5. A mechanism for deadlock handling.

**Question 2:**

Explain main-memory management.

**Answer:**

Primary-memory or Main-memory is a large array of words or bytes. Each word or

byte has its own address. Main-memory provides storage that can be accessed directly by the CPU. That is to say for a program to be executed, it must be in the main memory.

The major activities of an operating system in regard to memory-management are :

1. Keep track of which part of memory are currently being used and by whom.
2. Decide which process are loaded into the memory when memory space becomes available.
3. Allocate and deallocate memory spaces as needed.

**Question 3:**

Write a short note on File Management.

**Or**

Explain File Management.

**Answer:**

A file is a collection of related information defined by its creator. Computer can store files on the disk (secondary storage), which provide long term storage. Some examples of storage media are magnetic tape, magnetic disk and optical disk. Each of these media has its own properties like speed, capacity, data transfer rate and access methods. A file systems normally organized into directories to ease their use. These directories may contain files and other directions.

The five major activities of an operating system in regard to file management are :

1. The creation and deletion of files.
2. The creation and deletion of directories.
3. The support of primitives for manipulating files and directories.
4. The mapping of files onto secondary storage.
5. The back up of files on stable storage media.