**SESSION SEPTEMBER 2022**

**PROGRAM BACHELOR OF COMPUTER APPLICATION (BCA)**

**SEMESTER II**

**COURSE CODE &amp; NAME DCA1201 – OPERATING SYSTEM**

**Assignment Set – 1**

**1. What are the types of Operating System? Discuss the application areas of Real-time software.**

**Ans: Types of Operating System:-**

**Personal Computer Operating Systems**

The main mode of use of a PC (as its name implies) is by a single user. Thus Os for PCs were designed as a single user single task operating system, that is, it is assumed that only one user uses the machine and runs only one program at a time. The operating system of PCs consists of two parts. One part is called the BIOS (Basic Input Output system) which are stored in a ROM (Read Only Memory).

The other part called the

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**2. What is Preemptive and Non-preemptive Scheduling? Discuss any three CPU scheduling algorithms.**

**Ans:** Scheduling can either be pre-emptive or non-pre-emptive. If pre-emptive, then an executing process can be stopped and returned to ready state to make the CPU available for another ready process.

But if non-preemptive scheduling is used then a process once allotted the CPU keeps executing until either the process

**3. Discuss the use of semaphores. What are monitors?**

**Ans:** Semaphores are the classic method for restricting access to shared resources (e.g. storage) in a multi-processing environment. They were invented by Dijkstra and first used in T.H.E operating system.

A semaphore is a protected variable (or abstract data type) which can only be accessed using the following

**Assignment Set – 2**

**4. a. What is a Process Control Block? Explain its use.**

**Ans:** Every process has a number and a process control block (PCB) represents a process in an operating system. The PCB serves as a repository of information about a process and varies from process to process. The PCB contains information that makes the process an active entity. A PCB is shown in Figure. It contains many pieces of information associated with a specific process,

**b. What is Thrashing? What are its causes?**

**Ans: Thrashing:** When a process does not have enough frames or when a process is executing with a minimum set of frames allocated to it which are in active use, there is always a possibility that the process will page fault quickly. The page in active use becomes a victim and hence page

**5. a. Discuss the different File Access Methods.**

**Ans:** Information is stored in files. Files reside on secondary storage. When this information is to be used, it has to be accessed and brought into primary main memory. Information in files could be accessed in many ways. It is usually dependent on an application. Access methods could be:-

* Sequential access
* Direct access
* Indexed sequential access

**Sequential access**

In this simple access