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| **SESSION** | **AprIL 2023** |
| **PROGRAM** | **BACHELOR of COMPUTER APPLICATION (BCA)** |
| **SEMESTER** | **II** |
| **course CODE & NAME** | **DCA1201 – OPERATING SYSTEM** |
| **CREDITS** | **4** |

**Assignment Set – 1**

**Questions**

**1. A. Discuss different architectures of Operating System.**

**ANS: Operating systems** can be categorized into several different architectural types, each with its own approach to managing hardware and software resources.

**Here are four commonly recognized operating system architectures:**

**Monolithic Architecture:** The monolithic architecture is the traditional and earliest form of operating system "Its Half solved only

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**B. What is VMware? Write a short note on it.**

**ANS:** VMware is a virtualization and cloud computing software provider based in Palo Alto, Calif. Founded in 1998, VMware is a subsidiary of Dell Technologies. EMC Corporation originally acquired VMware in 2004; EMC was later acquired by Dell Technologies in 2016.

VMware is a leading software company specializing in virtualization and cloud computing technologies.

**2. Write a detailed note on FCFS, SJF and Priority scheduling taking suitable examples. What is Preemptive and Non-preemptive Scheduling?**

**Ans: Scheduling algorithms** play a crucial role in determining the order in which processes are executed by the operating system. Three commonly used scheduling algorithms are First-Come-First-Serve (FCFS), Shortest Job First (SJF), and Priority scheduling. Additionally, scheduling algorithms can be categorized as preemptive or non-preemptive based on whether a running

**3. Discuss Banker’s algorithm and how to find out if a system is in a safe state or not?**

**Ans: The Banker's algorithm** is a resource allocation and deadlock avoidance algorithm used in operating systems to ensure the safe execution of processes. It is designed to prevent the occurrence of deadlocks by carefully allocating resources to processes based on their declared

**Assignment Set – 2**

**Questions**

4. A. **What is PCB? What information is stored in it?**

**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

**B. What are monitors? Explain.**

**Ans: Monitors,** in the context of concurrent programming, are a synchronization construct used to control the access to shared resources or critical sections. They provide a higher-level abstraction that

**5. Discuss IPC and critical-section problem along with use of semaphores.**

**Ans:** Communication of co-operating processes’ shared-memory environment requires that these processes share a common buffer pool, and that the code for implementing the buffer be explicitly written by the application programmer. Another way to achieve the same effect is for the operating system to

**6. Explain the different Multiprocessor Interconnections and types of Multiprocessor Operating Systems.**

**Ans:**The nature of multiprocessor interconnections has an effect on the bandwidth for communication. Complexity, cost, IPC and scalability are some features considered in interconnections. Basic architectures for multiprocessor interconnections are as follows:

* Bus-oriented systems
* Crossbar-connected systems
* Hyper cubes