**INTERNAL ASSIGNMENTS**

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| **SESSION** | **JUL/AUG 2021** |
| **PROGRAM** | **MASTER OF COMPUTER APPLICATION (MCA)** |
| **SEMESTER** | **II** |
| **COURSE CODE & NAME** | **DCA6201 – OPERATING SYSTEM** |
| **CREDITS** | **4** |
| **NUMBER OF ASSIGNMENTS &****MARKS** | **02****30 Marks each** |

**Set- I**

**Q1 a. Discuss the three Operating System Structures.**

**b. What is Deadlock avoidance? Discuss Banker’s algorithm for the same. 5+5**

**Ans 1(a).**

**Three Operating System Structures:**

**Layered approach:** Dijkstra suggested the layered approach to lessen the design and implementation complexities of an operating system. The layered approach divides the operating system into several layers. The functions of operating system are divided among these layers. Each layer has well-defined functionality and input-output interfaces with the two adjacent layers. Typically, the bottom layer is concerned with machine hardware and the top layer is concerned Its Half solved only

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1. **Q2 a. What do you understand by Virtual Environment & Machine Aggregation?**

**b. What is a Process Control Block? What information is stored in it? 5+5 10**

**Ans (a).**

**Virtual Environment & Machine Aggregation:** A virtual environment (otherwise referred to as Virtual private server) is another kind of a virtual machine. In fact, it is a virtualized environment for running user-level programs (i.e. not the operating system kernel and drivers, but applications). Virtual environments are created using the software implementing operating system-level

**Q3. Discuss the CPU scheduling algorithms 10**

**Ans (3).**

**CPU- I/O Burst Cycle:** Process execution consists of alternate CPU (Central Processing Unit) execution and I/O (Input / Output) wait. A cycle of these two events repeats till the process completes execution (Figure). Process execution begins with a CPU burst followed by an I/O burst and

**Set – II**

**Q4 a. What is Page replacement? Discuss it’s FIFO algorithm with an example.**

**b. What is Thrashing? What are its causes? 5+5 10**

**Ans (a):**

**Page Replacement:** Initially, execution of a process starts with none of its pages in memory. Each of its pages will have page fault at least once when it is first referenced. But it may so happen that some of its pages are never used. In such a case those pages which are not referenced even once will never be brought into memory. This saves load time and memory space. If this is so, the degree of multi-programming can be increased so that more ready processes can be loaded and executed. Now, we may come across a situation wherein all of sudden, a process hitherto not accessing certain pages starts accessing those pages. The degree of multi-

**Q5 a. Discuss the different File Access Methods.**

**b. What are I/O Control Strategies? 5+5 10**

**Ans (a).**

**File Access Methods:** 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

**Q6. Discuss about Distributed processing and parallel processing. State the similarities and differences amongst them. 10**

**Ans (6).**

**Parallel and Distributed Processing:** Operating systems have moved from single process systems to single processor, multi-user, and multitasking systems. Today the trend is towards multiprocessor, multitasking systems. Distributed processing and parallel processing are two