Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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|  |  |  |  |
| **Code :** | **17CA2008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **OPERATING SYSTEM CONCEPTS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | | **Marks** |
| 1. | a. | Discuss the various services provided by the operating system with a neat diagram. | CO1 | | 10 |
| b. | Compare network operating system with real – time operating systems. | CO2 | | 5 |
| c. | Categorize the system calls based on the services provided by the operating system. | CO5 | | 5 |
| **(OR)** | | | | | |
| 2. | a. | Explain the various system programs in detail. | CO1 | | 10 |
| b. | Examine the role of virtual machines and their benefits. | CO3 | | 10 |
|  |  |  |  | |  |
| 3. | a. | Illustrate the different levels of client – server communication. | CO4 | | 10 |
| b. | Demonstrate the various states of a process with a suitable diagram. | CO4 | | 5 |
| c. | Differentiate between short – term and long – term schedulers. | CO4 | | 5 |
| **(OR)** | | | | | |
| 4. | a. | Elaborate the interprocess communication models that are used for co-operating the processes. | CO4 | | 10 |
| b. | Define process control block with a neat diagram showing the CPU switching between the processes. | CO4 | | 10 |
|  |  |  |  | |  |
| 5. | a. | Determine the average waiting time of the following processes using a Gantt chart by applying:   1. FCFS scheduling 2. SJF scheduling  |  |  | | --- | --- | | Process | Burst Time | | P1 | 6 | | P2 | 8 | | P3 | 7 | | P4 | 3 | | CO5 | | 10 |
| b. | Construct a corresponding wait – for – graph for the following resource – allocation graph.  **R2**  **R1**  **R3**  **R4**  **R5** | CO4 | | 10 |
| **(OR)** | | | | | |
| 6. | a. | Discover the possible methods to avoid the deadlock situation. | | CO3 | 10 |
| b. | What would be the average waiting time of the following processes?   |  |  |  | | --- | --- | --- | | **Process** | **Burst Time** | **Prioirty** | | P1 | 10 | 3 | | P2 | 1 | 1 | | P3 | 2 | 5 | | P4 | 1 | 2 | | P5 | 5 | 4 | | | CO5 | 10 |
|  |  |  | |  |  |
| 7. | a. | Inspect the allocation of main memory in contiguous manner. | | CO6 | 10 |
| b. | Simplify the FIFO page replacement technique with a suitable example. | | CO5 | 10 |
| **(OR)** | | | | | |
| 8. | a. | Identify the techniques used for structuring the page table. | CO5 | | 15 |
| b. | Compare and contrast: Buddy system with Slab allocation. | CO6 | | 5 |
|  | | **Compulsory**: |  | |  |
| 9. | a. | Classify the RAID levels with a neat diagram. | CO6 | | 15 |
| b. | Differentiate between linked and indexed allocation of the disk space. | CO6 | | 5 |