****

**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

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

**End Semester Examination – Nov/Dec - 2016**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **09CS212/12CS211/CS247/CS247** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **Operating Systems** | **Max. marks :** | **100** |

|  |  |  |
| --- | --- | --- |
| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | What is the function of an operating system? | (1) |
| 2. | An operating system that is capable of allowing multiple software processes to run at the same time is called \_\_\_\_\_\_\_\_\_\_\_\_. | (1) |
| 3. | Define Thread. | (1) |
| 4. | What is a Binary semaphore? | (1) |
| 5. | State the conditions for Deadlock. | (1) |
| 6. | What do you mean by compaction? | (1) |
| 7. | The high paging activity is called \_\_\_\_\_\_\_\_\_\_\_\_. | (1) |
| 8. | What is demand paging? | (1) |
| 9. | Define seek time. | (1) |
| 10. | What are the advantages of using disk over Main Memory for storage? | (1) |

|  |  |  |
| --- | --- | --- |
| **PART B(5 X 3= 15 MARKS)** | | |
| 11 | What is the use of co-operating process? | (3) |
| 12 | Explain process state transition diagram. | (3) |
| 13 | Differentiate between Logical versus Physical Address space. | (3) |
| 14 | What is meant by locality of reference? What are its types? | (3) |
| 15 | Why is disk scheduling important? | (3) |

|  |  |  |  |
| --- | --- | --- | --- |
| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. | a. | Mention the various services provided by the operating systems. | (5) |
| b. | Discuss the different types of operating systems in detail. | (10) |
| (OR) | | | |
| 17. | a. | Briefly explain the types of system calls provided by a typical operating system. | (15) |
| 18. | a. | What is the role of PCB? List the attributes of PCB. | (7) |
| b. | State and explain the different mechanism for Inter process communication. | (8) |
| (OR) | | | |
| 19. | a. | Compute average turnaround time and average waiting time for the following scheduling methods.  a. FIFO b.SJF c.Round robin (quantum = 2ns).   |  |  |  | | --- | --- | --- | | Process | Burst time (ns) | Arrival time | | P1 | 4 | 2 | | P2 | 2 | 1 | | P3 | 5 | 1 | | P4 | 3 | 3 |   Draw the Gantt charts for the above scheduling methods. | (15) |
| 20. | a. | Write and explain the monitor solution for Dining-philosopher problem. | (10) |
| b. | What is a semaphore? What are its operations? | (5) |
| (OR) | | | |
| 21. | a. | What is paging? Describe the basic method of paging. | (5) |
| b. | Explain the structure of page table and its types in detail. | (10) |
| 22. | a. | What is page fault? Consider the reference string 1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5. There are 3 frames allotted in the memory at a time. Apply FIFO, LRU, Optimal page replacement algorithms and find the number of page faults. | (15) |
| (OR) | | | |
| 23. | a. | Explain the various file directory structures. | (15) |
| 24. | a. | Describe the RAID structure in detail. | (8) |
| b. | Write short notes on the following:  a. SSTF c. SCAN d. C-SCAN | (7) |
| (OR) | | | |
| 25. | a. | Describe the kernel I/O sub systems in detail. | (8) |
| b. | Elaborate Swap space management. | (7) |

ALL THE BEST