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**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**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **09CS206/12CS205/ CS227** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **Unix Architecture** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | **Marks** |
| **PART-A(10X1=10 MARKS)** | | | |
| 1. | What is a shell? | | (1) |
| 2. | Define Buffer Cache. | | (1) |
| 3. | What is an inode?List the fields in an Inode. | | (1) |
| 4. | What is meant by process? | | (1) |
| 5. | Predict the output of the following program code  main()  {              fork();  printf("Hello World!");  } | | (1) |
| 6. | Where is file permission stored? | | (1) |
| 7. | Define a region. | | (1) |
| 8. | What is a map? | | (1) |
| 9. | What is the syntax of ptrace system call? | | (1) |
| 10. | Define Socket. | | (1) |
| **PART B(5 X 3= 15 MARKS)** | | | |
| 11. | Write the advantages and disadvantages of buffer cache. | | (3) |
| 12. | List the contents of super block. | | (3) |
| 13. | Define Context Switch. Write down the steps for context switching. | | (3) |
| 14. | What is the difference between Swapping and Paging? | | (3) |
| 15. | Differentiate block devices and character devices of Unix system. | | (3) |
| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. | a. | Sketch the block diagram of system kernel and explain the mechanism behind file  Sub system and process control subsystem. | 10 |
| b. | Draw and explain the various process states and its transition. | 5 |
| (OR) | | | |
| 17. |  | What are the five typical scenarios the kernel may follow in getblk to allocate a buffer for a disk block? Explain the first two scenarios with suitable example. | 15 |
| 18. | a. | Explain the algorithm for conversion of a path name to an inode. | 8 |
| b. | With neat diagram elucidate the internal representation of the file in Unix systems. | 7 |
| (OR) | | | |
| 19. | a. | List the system calls required for accessing an existing file. Give the syntax and examples for each of the system calls. | 10 |
| b. | Write the algorithm and syntax with example for creating a regular file. | 5 |
| 20. | a. | Illustrate the working of Fork system call for process creation. | 10 |
| b. | Write down the algorithm for handling interrupt. | 5 |
| (OR) | | | |
| 21. | a. | Describe the algorithm for handling signals after recognizing their existence. | 8 |
| b. | How will you increase and decrease the size of a process. | 7 |
| 22. |  | With relevant diagram explain the data structures for demand paging. | 15 |
| (OR) | | | |
| 23. | a. | Elucidate the various System Calls for Time. | 8 |
| b. | Write an algorithm for process scheduling. | 7 |
| 24. |  | How the processes communicate with each other using socket Inter process Mechanism? Discuss the various system calls used for this connection. | 15 |
| (OR) | | | |
| 25. | a. | With different system calls describe the process tracing mechanism. | 7 |
| b. | What is the purpose of messages? Explain the various system calls used for the IPC mechanism. | 8 |

ALL THE BEST