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



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

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| **Code :** | **14CS2050** | **Duration :** | **3hrs** |
| **Sub. Name :** | **UNIX ARCHITECTURE** | **Max. Marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Brief on the features and benefits of UNIX operating system. | CO1 | 5 |
| b. | Describe the Unix kernel architecture with a neat diagram. | CO1 | 15 |
| **(OR)** | | | | |
| 2. |  | Discover the need for buffer in an operating system when executing a program. Discuss the various scenarios for buffer retrieval using necessary example and algorithm. | CO1 | 20 |
|  |  |  |  |  |
| 3. | a. | Elucidate the differences between disk inode and incore inode. | CO1 | 10 |
| b. | Describe how to convert pathname / etc / passwd to inode with an algorithm. | CO1 | 10 |
| **(OR)** | | | | |
| 4. | a. | Discuss the different types of pipes and illustrate how reading and writing happens in the pipe. | CO2 | 10 |
| b. | Illustrate the execution of each system call with the data structure for the below given program. | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Paraphrase the different states of a process with a neat diagram. | CO2 | 12 |
| b. | Describe how does the kernel handle interrupts. | CO3 | 8 |
| **(OR)** | | | | |
| 6. | a. | Explain the creation of a process with an algorithm. Demonstrate the creation of two child processes with a C program. | CO2 | 10 |
| b. | Discuss the steps in handling the signals. | CO3 | 10 |
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| 7. | a. | Consider three different processes A, B and C with an initial priority value of 60. The highest user-level priority is 60 and the clock interrupts the system 60 times a second. Compute the decay of CPU usage and the process priority between processes A, B and C. Write the algorithm used for scheduling the process. | CO2 | 12 |
| b. | Elaborate on the various system calls related to time. | CO3 | 8 |
| **(OR)** | | | | |
| 8. |  | Describe any one memory management method with a diagram. | CO3 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain how process tracing happens between processes. | CO3 | 10 |
| b. | Discuss the various system calls related to sockets and illustrate the inter-process communication with sockets using a C program. | CO3 | 10 |