**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES**

**CLASS TEST -1**

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| **Course Code: CSA04** | **Course Name: Operating Systems** | |
| **Branch: CSE** | **SLOT: D** | **Year: Second** |
| **Date of Exam: 26.11.2024** | **Max. Marks: 20** | **Time: 1 Hour** |

**ANSWER ALL THE QUESTIONS**

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| **S.NO** | **QUESTION** | **MARKS** | **CO MAPPING** | **BLOOM’S TAXONOMY** |
| 1 | Discuss how system calls act as an interface between user applications and the operating system, providing a secure and controlled means for user programs to request services like process management, file operations, and inter-process communication. Explain with examples of at least three types of system calls (e.g., fork() for process creation, read() for file input, and socket() for network communication). Why is direct access to kernel functionalities by user programs restricted, and how does this restriction enhance system security and stability? | 10 | CO1 | K4 |
| 2 | Describe the transitions between user mode and kernel mode during a system call, explaining how the operating system switches to kernel mode to execute privileged instructions and then returns to user mode once the task is complete. Discuss the significance of these modes in ensuring system stability and security by isolating user applications from directly accessing critical system resources. Use a diagram to illustrate the process of a system call, such as opening a file or creating a process, showing the flow between user mode and kernel mode. | 10 | CO1 | K3 |

**COURSE FACULTY COURSE COORDINATOR HOD**