

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY- MSC CS

Term End Examination (2025 Pattern) April- May – 2026- Semester – II

Course Name: Advanced Operating System
Course Code: 25PSC202T

Max.Marks: 50
Time: 2 Hr. 30 Minutes

Instructions

- All questions are compulsory.
- Figures to the right indicate full marks.
- Attempt questions as per instructions.

Q1.	Attempt any 5 out of 7. (2 mark each) a) Apply creat() system call to create a new file and mention its parameters. b) Use umask command to set default file permissions for newly created files. c) Demonstrate how dup2() can be used to duplicate a file descriptor. d) Apply interprocess communication using signals with a suitable example. e) Utilize sticky bit for giving write permissions to user. f) Apply concept of file ownership to assign a file to a different user. g) Demonstrate handling of exceptions during program execution in UNIX.	(10 Marks)	CO3
Q2.	Attempt any 4 out of 6. (5 marks each) a) Analyze the disk layout of UNIX file system with suitable diagram. b) Differentiate between stat(), fstat() and lstat() system calls with use cases. c) Examine the role of process context in process switching. d) Analyze the working of exec() family of system calls in program execution. e) Compare file access methods in UNIX with suitable examples. f) Examine the role of signals in process termination and control.	(20 Marks)	CO4

Q.3	Attempt any 2 out of 3. (5 marks each) (10 Marks) a) Evaluate advantages and limitations of dynamic memory allocation techniques. b) Assess the effectiveness of demand paging in modern operating systems. c) Evaluate the role of swapping in memory management with its impact on performance.	CO5
Q.4	Compulsory Question. (10 Marks) Design a system utility which determine the number of regular files, directories, and symbolic links within a given folder and perform following task 1. Create directory in specified month. 2. Open directory. 3. Read contents of directory using size aspect. 4. Sort directory structure. 5. Close directory.	CO6
