

BCA-362: Operating System-II

Maximum Marks: 100

Minimum Pass Marks: 35

Time: 3 hours

External: 80

Internal: 20

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

UNIT – I

Process Synchronization: The Critical Section Problem – Single Process/Two Process Solutions; Semaphores – Types, Implementation, Deadlocks and Starvation; Classical Problems of Synchronization – The Bounded Buffer Problem, The Readers and Writers Problem, The Dining-Philosophers Problem, Critical Regions, Monitors

Directory Structure: Single Level, Two Level, Tree Structures, Acyclic Graph, General Graph; Directory Implementation, Recovery

UNIT – II

Secondary Storage Structure: Disk Structure, Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK; Selection of Disk Scheduling Algorithm; Disk Management; Swap Space Management

Network Operating Systems: Remote Login, Remote File Transfer;

Distributed Operating System: Data Migration, Computation Migration, Process Migration

UNIT – III

Linux: Introduction, Features, Architecture, Distributions, Accessing Linux System, Login/Logout/Shutting Down, Comparison of Linux with other Operating Systems, Commands in Linux: General-Purpose Commands, File Oriented Commands, Directory Oriented Commands, Communication Oriented Commands, Process Oriented Commands, Redirection of Input and Output, Pipes

UNIT – IV

Linux File System: Types of Files in Linux, File Attributes, Structure of File System, inode, File Permission, File System Components, Standard File System, File System Types, Disk Related Commands

Processes in Linux: Introduction, Job Control in Linux using at, batch, cron & time commands

The vi editor: Introduction, Modes of vi Editor, Command in vi Editor

Shell Programming: Introduction, Shell Variables, Shell Keywords, Operators, Assigning Values to the Variables, I/O in Shell, Control Structures, Creating & Executing Shell Programs in Linux.

TEXT BOOKS:

- Silberschatz A., Galvin P.B., and Gagne G., “Operating System Concepts”, John Wiley & Sons, Inc., New York.
- Godbole, A.S., “Operating Systems”, Tata McGraw-Hill Publishing Company, New Delhi.
- Richard Petersen, The Complete Reference – Linux, McGraw-Hill.
- Yashwant Kanetkar, UNIX & Shell programming – BPB.

REFERENCE BOOKS:

- Deitel, H.M., “Operating Systems”, Addison- Wesley Publishing Company, New York.
- Tanenbaum, A.S., “Operating System- Design and Implementation”, Prentice Hall of India, New Delhi.
- Sumitabha Das, Your UNIX - The Ultimate Guide, Tata McGraw-Hill.