

<b>CHAPTERS</b>	<b>CONTENTS</b>	<b>PAGE NO</b>
<b>1</b>	<b>INTRODUCTION TO OPERATING SYSTEMS</b>	<b>1</b>
	1.1. Objectives	1
	1.2. Introduction	1
	1.3. Operating System	2
	1.4. I/O System Management	4
	1.5. Assembler	4
	1.6. Compiler	4
	1.7. Loader	4
	1.8. History of Operating System	5
	1.9. Operating System Services	5
	1.10. Operating System Components	7
	1.11. Batch System	8
	1.12. Time Sharing Systems	8
	1.13. Multiprogramming	9
	1.14. Spooling	10
	1.15. Essential Properties of the Operating System	11
	1.16. System Calls	12
	1.17. System Program	13
	1.18. Linux introduction and File System	13
	1.19. Kernel Modules	15
	1.20. Basic Features	16
	1.21. Basic Architecture of UNIX/LINUX System	18
	1.22. Summary	20
	1.23. Model Questions	21
	1.24. Objective Questions	21
<b>2</b>	<b>CPU &amp; PROCESS SCHEDULING</b>	<b>25</b>
	2.1. Objectives	25
	2.2. Concept of Process	25
	2.3. Process State	26
	2.4. Process Management / Process Scheduling	28

2.5. Context Switch	31
2.6. Operation on Processes	32
2.7. Co-Operating Processes	33
2.8. Process Scheduling & Principle of Concurrency	34
2.9. Race Condition	36
2.10. Requirements for Mutual Exclusion	37
2.11. Mutual Exclusion – Software Support	37
2.12. Mutual Exclusion – Hardware Support	38
2.13. Semaphores	40
2.14. Monitors	47
2.15. Operating System Scheduling Algorithms	48
2.16. Threads	59
2.17. Types of Thread	60
2.18. Multithreading Models	62
2.19. Difference between User Level & Kernel Level Thread	64
2.20. Difference between Process and Thread	64
2.21. Threading Issues	65
2.22. Summary	65
2.23. Model Questions	67
2.24. Objective Questions	67
<b>3      MEMORY MANAGEMENT IN OS</b>	<b>73</b>
3.1. Objectives	73
3.2. Memory Management	73
3.3. Swapping	76
3.4. Contiguous Allocation	77
3.5. Paging	80
3.6. Segmentation	81
3.7. Virtual Memory	82
3.8. Demand Paging	84
3.9. Page Replacement Algorithm	88
3.10. Counting Algorithms	92

3.11. Page Buffering Algorithm	93
3.12. Summary	95
3.13. Model Questions	95
3.14. Objective Questions	96
<b>4      STORAGE MANAGEMENT AND FILE SYSTEMS</b>	<b>100</b>
4.1. Objective	100
4.2. File Concept	100
4.3. File Structure	101
4.4. File Attributes	101
4.5. File Operations	101
4.6. File Management Systems	103
4.7. File-System Mounting	105
4.8. Disk Structure	112
4.9. Disk Scheduling	113
4.10. Disk Management	121
4.11. Swap Space Management	122
4.12. Stable Storage Implementation	123
4.13. Disk Reliability	123
4.14. Raid Levels	124
4.15. Summary	130
4.16. Model Questions	130
4.17. Objective Questions	131
<b>5      DEADLOCK &amp; SECURITY IN OS</b>	<b>135</b>
5.1. Objectives	135
5.2. Introduction	135
5.3. Deadlock Characterization	135
5.4. Method For Handling Deadlock //Detection	138
5.5. Deadlock Prevention	139
5.6. Deadlock Avoidance	140
5.7. Deadlock Detection	144
5.8. Recovery from Deadlock	144

5.9. Goals of Protection	153
5.10. Principles of Protection	153
5.11. Domain of Protection	154
5.12. Access Matrix	154
5.13. Revocation of Access Rights	155
5.14. Summary	157
5.15. Model Question	158
5.16. Objective Questions	158

#### **QUESTION BANK**