Code No: R2031422 **R20** SET - 1

III B. Tech I Semester Regular/Supplementary Examinations, December -2023
OPERATING SYSTEMS
CSE(AIML),CSE(AI),CSE(DS),CSE(AIDS),AIDS,AIML& CSD

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	Discuss in detail the Operating System Functions.	[7M]
	b)	How user interacts with operating system? Elaborate on Operating System Interface.	[7M]
		(OR)	
2.	a)	What are the various components of Operating System Structure? Explain them.	[7M]
	b)	What are system calls? Give its classification.	[7M]
		UNIT-II	
3.	a)	Give the significance of Process Scheduling. Compare long term schedulers with short term and middle term schedulers.	[7M]
	b)	What is multithreading? Explain different categories of Multithreading Models.	[7M]
		(OR)	
4.	a)	What is Race Condition? Where does it occur? Illustrate.	[4M]
	b)	Give the comparison of various process scheduling algorithms.	[10M]
		UNIT-III	
5.	a)	What is the need of Memory Management? Explain in detail.	[7M]
	b)	Discuss in detail about Demand Paging.	[7M]
		(OR)	
6.	a)	What is Virtual Memory? Explain about Frame Allocation.	[7M]
	b)	What is segmentation? Compare it with paging.	[7M]
		UNIT-IV	
7.	a)	How deadlock can be detected? Explain any one deadlock detection algorithm.	[7M]
	b)	What is a Disk? Give the Overview of Disk Structure.	[7M]
		(OR)	
8.	a)	Elaborate on the necessary and sufficient conditions for deadlock occurrence.	[7M]
	b)	Give the comparison of various disk scheduling algorithms.	[7M]
		UNIT-V	
9.	a)	What is System Protection? Explain in detail the Goals of Protection.	[7M]
	b)	Define threat. Explain in detail about System and Network Threats.	[7M]
		(OR)	
10.	a)	Compare and contrast Linux with Microsoft Windows.	[7M]
	b)	Explain in detail about the Classification of Computer Security.	[7M]

Code No: R2031422 **R20** SET - 2

III B. Tech I Semester Regular/Supplementary Examinations, December -2023
OPERATING SYSTEMS
CSE(AIML),CSE(AI),CSE(DS),CSE(AIDS),AIDS,AIML& CSD

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	Write a detailed note on Operating System Operations.	[7M]
	b)	Elaborate on the services provided by operating system.	[7M]
		(OR)	
2.	a)	How operating system handles system calls? Illustrate system calls for file handling.	[7M]
	b)	Discuss in detail about the need of Open-Source Operating System.	[7M]

UNIT-II

3.	a)	What is Inter Process communication? Explain about the issues in IPC.	[7M]
	b)	What is Scheduling? Explain in detail about Scheduling Criteria.	[7M]
		(OR)	
4.	a)	Describe the Readers and writers' problem. How to handle it?	[7M]
	b)	How does semaphores provide solution for IPC? Illustrate.	[7M]

UNIT-III

5.	a)	Discuss in detail about Swapping with a neat diagram.	[7M]
	b)	Explain Copy on-write memory management strategy.	[7M]
		(OR)	
6.	a)	What is Paging? Where does it used? Explain.	[7M]
	b)	Discuss in detail about Kernel Memory Allocation.	[7M]

UNIT-IV

7.	a)	How Deadlock Recovery can be done? Explain with a suitable example.	[7M]
	b)	Explain about RAID Structure along with its merits and demerits.	[7M]
		(OR)	
8.	a)	Explain Ostrich Algorithm with an example.	[7M]
	b)	How File Systems are Managed and optimized? Explain.	[7M]

UNIT-V

9.	a)	Summarize the Principles that need to be considered for system Protection.	[7M]
	b)	Describe the role of Cryptography for Security.	[7M]
		(OR)	
10.	a)	Explain in detail about Program Threats.	[7M]
	b)	List out the advantages of Microsoft Windows over Linux Operating System.	[7M]

Code No: R2031422 **R20** SET - 3

III B. Tech I Semester Regular/Supplementary Examinations, December -2023
OPERATING SYSTEMS
CSE(AIML),CSE(AI),CSE(DS),CSE(AIDS),AIDS,AIML& CSD

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	Write a detailed note on Computing Environments.	[7M]
	b)	Give the classification of operating systems. Mention their merits and demerits.	[7M]
		(OR)	
2.	a)	Explain the layered structure of UNIX operating system.	[7M]
	b)	What is System Boot? Explain in detail.	[7M]

UNIT-II

3.	a)	What is a Process? Explain in detail about Communication in Client-Server Systems.	[7M]
	b)	Explain in detail about various fields of Process Control block..	[7M]
		(OR)	
4.	a)	What are Thread Libraries? List out Threading Issues.	[7M]
	b)	Give the Peterson solution to critical section problem.	[7M]

UNIT-III

5.	a)	Explain in detail about Contiguous Memory Allocation.	[7M]
	b)	How does a system identify Thrashing and how to eliminate it?	[7M]
		(OR)	
6.	a)	What are Memory Mapped Files? Explain in detail.	[7M]
	b)	Write a brief note on Segmentation. Compare it with paging.	[7M]

UNIT-IV

7.	a)	How does resource allocation graphsupport Deadlock Avoidance? Explain	[7M]
	b)	Explain in detail about the necessity of File SystemOptimization.	[7M]
		(OR)	
8.	a)	Explain briefly about Deadlock Recovery.	[7M]
	b)	Distinguish between single level, two level and tree structured directories.	[7M]

UNIT-V

9.	a)	Discuss in role of access matrix in system Protection.	[7M]
	b)	How doesFirewall protect systems and networks? Give its classification.	[7M]
		(OR)	
10.	a)	Explain goals of system protection with an example.	[7M]
	b)	How does User Authenticationsecure the system? Explain	[7M]

Code No: R2031422 **R20** SET - 4

III B. Tech I Semester Regular/Supplementary Examinations, December -2023
OPERATING SYSTEMS
CSE(AIML),CSE(AI),CSE(DS),CSE(AIDS),AIDS,AIML& CSD

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	What is an Operating System? Explain its Functions.	[7M]
	b)	Explain in detail about User and Operating System Interface.	[7M]
		(OR)	
2.	a)	Give the classification of operating systems along with their merits and demerits.	[7M]
	b)	Explain in detail about Operating System Structure.	[7M]

UNIT-II

3.	a)	Write a detailed note on Scheduling Algorithms.	[7M]
	b)	Discuss the solution to Dining Philosophers Problem using semaphores.	[7M]
		(OR)	
4.	a)	What are Mutexes? Give their role in IPC.	[7M]
	b)	What is Message Passing? Explain briefly about Barriers.	[7M]

UNIT-III

5.	a)	Explain in detail how Swapping is used in Memory management.	[7M]
	b)	Illustrate LRU and RR Page Replacement algorithms with examples.	[7M]
		(OR)	
6.	a)	Distinguish between Main Memory and Virtual Memory.	[7M]
	b)	Write a detailed note on Kernel Memory Allocation.	[7M]

UNIT-IV

7.	a)	Compare SCAN and C-SCAN disc scheduling algorithms.	[7M]
	b)	Explain indexed file allocation method with an example.	[7M]
		(OR)	
8.	a)	How to recover from deadlock situations? Explain.	[7M]
	b)	Discuss about File system Implementation in detail.	[7M]

UNIT-V

9.	a)	Explain in detail about Access Matrix mechanism of system protection.	[7M]
	b)	Elaborate on various features of Linux Operating System.	[7M]
		(OR)	
10.	a)	Write a brief note on Revocation of Access Rights.	[7M]
	b)	Explain in detail about Implementing Security Defenses.	[7M]