

30/05/2022

K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

April - May 2022

(B. Tech) Program: Information Technology

Examination: SY Semester: IV

Course Code: 1UITC403 and Course Name: Operating System

Duration: 03 Hours

Max. Marks:60

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	Describe characteristics of Modern Operating System.	2	CO1	U
ii)	Discuss the Multithreading Models in detail.	2	CO2	U
iii)	Discuss the Race Condition	2	CO3	U
iv)	Discuss conversion of logical address into physical address in paging.	2	CO4	U
v)	Discuss different RAID levels.	2	CO5	U
vi)	Discuss distributed operating system.	2	CO6	U
vii)	Discuss Inter Process Communication (IPC).	2	CO2	U
viii)	Explain Internal and External Fragmentation.	2	CO4	U
Q.2	Solve any four questions out of six.	16		
i)	Discuss the Difference between Monolithic and Micro kernel.	4	CO1	U
ii)	Discuss various states of process with the help of State Transition diagram.	4	CO2	U
iii)	Describe the Critical Section. Discuss the requirements to solve the critical Section Problem.	4	CO4	U
iv)	Demonstrate any one Page Replacement Algorithm with suitable example.	4	CO3	A

v)	Discuss free space management in operating system.	4	CO5	U																																																																																										
vi)	Compare Multimedia and Batch Operating System.	4	CO6	An																																																																																										
Q.3	Solve any two questions out of three.	16																																																																																												
i)	Describe System Call. Explain various System Calls with examples.	8	CO1	U																																																																																										
ii)	Use following Scheduling algorithm to calculate ATAT &AWT for the following process: a. Pre-emptive and Non-Pre-emptive SJF b. Round Robin	8	CO2	U																																																																																										
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iii)	Describe in brief the Classical Problems of Synchronization. Demonstrate any one type with the help of suitable example.	8	CO3	A																																																																																										
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i)	Explain various allocation schemes that exist for allocating secondary storage to files.	8	CO5	U																																																																																										
ii)	A) Discuss Bankers Algorithm. B) Apply Banker's algorithm answer the following question a) How many resources of type A, B, C, D are there? b) What are the contents of need Matrix? c) Find system is in safe state? If it is, Find safe sequence.	8	CO4	U																																																																																										
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iii)	Compare Cloud and IoT Operating Systems. Discuss the 4 main components of IoT system with a neat diagram.	8	CO6	An																																																																																										
