PRN:		Course Code :	PCA102R

First Year M.C.A End Semester Examination Winter 2024

Principles of Operating Systems 000385

Day and Date: Mon le 2 DEC 2024 Max Marks: **100**

Time : 10:30AM To 01:30PM Duration: **03** hrs

Instructions:All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Demonstrate a computing environment with its types?	08	L2	CO1
	b)	Define operating system. Explain different operation in OS.	08	L1	CO2
		OR			
	b)	Compare and contrast the functions of a monolithic and micro-kernel operating system.	08	L3	CO2
Q.2		**Attempt the following**			
	a)	What is process?Explain the PCB with diagrammatic representation.	08	L2	CO2
	b)	List and briefly explain the different operations related to processes in an operating system.	08	L2	CO2
		OR			
	b)	What is process concept? Demonstrate with diagrammatic representation?.	08	L2	CO2
Q.3		**Attempt any two from the following**			
	a)	Explain Peterson's solution to solve the critical section problem, providing an algorithm?	08	L5	CO3
	b)	Explain the atomic operations used in semaphore and Explain its types.	08	L2	CO2
	c)	Illustrate Round Robin algorithm with advantages and disadvantages.	08	L2	CO2
Q.4		**Attempt any two from the following**			
	a)	What is deadlock? Explain necessary conditions for deadlock.	08	L2	CO1
	b)	Illustrate common methods for Deadlock Detection and Recovery.	08	L2	CO2
	c)	Identify the ways for deadlock prevention.	08	L3	CO3
Q.5		**Attempt any Two of the following**			
	a)	Explain Swapping in Operating System with neat diagram.	09	L3	CO3
	b)	Explain the concept of Segmentation.	09	L2	CO3
	c)	Explain the role of the Memory Management Unit (MMU) in a computer system	09	L2	CO3
Q.6		**Attempt any Two of the following**			
	a)	Demonstrate different Access methods.	09	L3	CO4
	b)	Justify File directory and types of directory.	09	L4	CO4
	c)	Explain the different allocation methods.	09	L3	CO4

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