PRN:		Course Code :	PCA102R

First Year M.C.A.End Semester Examination Winter 2023

Principles of Operating Systems

Day and Date: Thursday 14/12/2023 Max Marks: **100**

Time : 2.00 to 5.00 PM Duration: **03**hrs

Instructions: All questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Attempt the following**			
a)	Explain the functions of operating system.	08	L2	CO1
b)	Define operating system. Explain different operation in OS.	08	L5	CO2
	OR			
b)	Explain following system structure a) Monolithic b) Micro-Kernel	08	L2	Co2
Q.2	**Attempt the following**			
a)	What is thread? Explain multithreading modules?	08	L2	CO2
b)	Demonstrate process concept with diagrammatic representation of PCB?	08	L3	CO2
	OR			
b)	Classify various inter-process communication techniques with diagrams?	08	L4	CO4
Q.3	**Attempt any two from the following**			
a)	Construct Gantt Chart by FCFS Scheduling Algorithms. Estimate average TAT?	08	L5	CO2

Process	Duration	Order	Arrival Time
P1	24	1	0
P2	3	2	0
P3	4	3	0

b)	Explain reader writer problem with diagram.	08	L5	CO1
c)	How Peterson's solution is used to solve the critical section problem, providing an algorithm?	08	L2	CO2
Q.4	**Attempt any two from the following**			
a)	Illustrate common methods for handling deadlocks in operating systems.	08	L3	CO1
b)	Identify the ways for deadlock avoidance.	08	L2	CO2
c)	Demonstrate Strategies for handling Deadlock.	08	L3	CO3
Q.5	**Attempt any Two of the following**			
a)	Distinguish between Logical address space and Physical address space.	09	L5	CO4
b)	Explain the concept of Segmentation.	09	L4	CO3
c)	Illustrate segmentation with diagrammatic representation.	09	L2	CO4
Q.6	**Attempt any Two of the following**			
a)	Explain directory and disk structure.	09	L4	CO4
b)	Classify different Allocation Methods	09	L3	CO4
c)	Explain Free-Space Management with advantages and disadvantages	09	L2	CO4

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