

ADAMAS UNIVERSITY
END SEMESTER EXAMINATION
 (Academic Session: 2020 – 21)

Name of the Program:	MCA	Semester:	II
Paper Title:	OPERATING SYSTEM	Paper Code:	CSE21910
Maximum Marks:	50	Time Duration:	3 Hrs
Total No. of Questions:	17	Total No of Pages:	3
(Any other information for the student may be mentioned here)	1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam. 2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page. 3. Assumptions made if any, should be stated clearly at the beginning of your answer.		

Group A

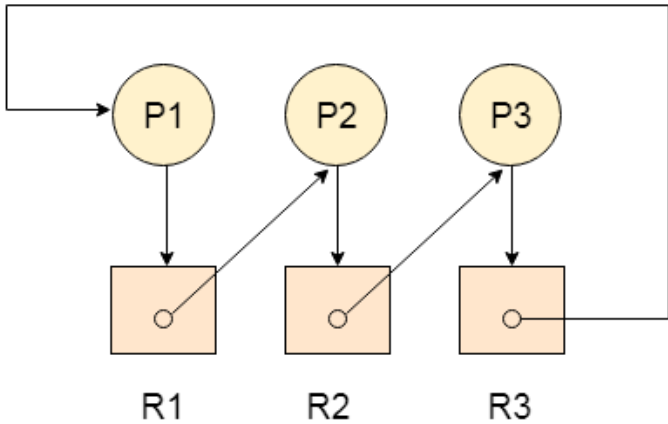
Answer All the Questions (5 x 1 = 5)

1	How race condition blocks a process in action and why it do so, suggest your answer?	R	CO1
2	What is significance of RTOS?	U	CO2
3	How Context switching swap user action between user mode and kernel mode?	C	CO3
4	Define multitasking and why is it necessary?	Ap	CO4
5	Differentiate scheduler and dispatcher?	An	CO5

Group B

Answer All the Questions (5 x 2 = 10)

6 a)	i) Explain Internal Fragmentation with suitable diagram. ii) Define the role of Process control block.	R	CO1
(OR)			
6 b)	i) Define external fragmentation with suitable diagram. ii) Analyze fixed memory allocation technique and its impact on memory.	U	CO1
7 a)	Explain FIFO page replacement technique where frame size is three and page string is (1,3,0,3,5,6,3).	U	CO2
(OR)			
7 b)	Difference between multitasking and multi-processing	U	CO2
8 a)	State the difference between Volatile and non volatile memory.	C	CO3
(OR)			
8 b)	Explain Thread control block with neat diagram.	Ap	CO3
9 a)	Analyze the action of demand paging and why it is necessary.	An	CO4
(OR)			
9 b)	Define the usage of FORK() and EXEC() system call in OS.	Ap	CO4
10 a)	Define the role of Long term and short term scheduler.	An	CO5
(OR)			

10 b)	Define the term dead lock and starvation.	R	CO1
Group C Answer All the Questions (7 x 5 = 35)			
11 a)	i) Define necessary condition for dead lock. ii) How RAG detect dead lock give a suitable analysis.	Ap	CO4
(OR)			
11 b)	i) Explain spooling with suitable example? ii) Explain 1 st generation computer and their usage.	Ap	CO4
12 a)	Is there any dead lock in graph given below suggest your answer how to detect dead lock	Ap	CO4
			
(OR)			
12 b)	Explain dynamic partitioning and its advantages over fixed partitioning?	U	CO2
13 a)	Consider a main memory with five page frames and the following sequence of page references: 3, 8, 2, 3, 9, 1, 6, 3, 8, 9, 3, 6, 2, 1, 3. Use the page replacement with respect to First-In-First-out (FIFO), Find the number of HIT and MISS in each technique with a neat diagram.	Ap	CO3
(OR)			
13 b)	Consider a main memory with five page frames and the following sequence of page references: 3, 8, 2, 3, 9, 1, 6, 3, 8, 9, 3, 6, 2, 1, 3. Use the page replacement with respect to Least Recently Used (LRU)? Find the number of HIT and MISS in each technique with a neat diagram.	Ap	CO3
14 a)	Define the working mechanism of secondary memory in terms of track and sector with suitable diagram.	Ap	CO4
(OR)			
14 b)	Define seek time, rotational latency, data transfer time, controller time, and average rotational latency.	U	CO2
15 a)	Consider a hard disk with: 4 surfaces, 64 tracks/surface, 128 sectors/track 256 bytes/sector, What is the capacity of the hard disk?	Ap	CO4
(OR)			
15 b)	Explain magnetic disk structure with suitable diagram.	U	CO1
16 a)	Analyze different features of kernel.	U	CO1
(OR)			
16 b)	Write short notes on i) NETWORK-OS, ii) Distributed OS	Ap	CO5
17 a)	Explain FCFS disk scheduling algorithm, and compute total seek time	An	CO5

	of the sequence given (82,170,43,140,24,16,190) And current position of Read/Write head is : 50		
(OR)			
17 b)	State the difference between Firmware and Operating system.	Ap	CO5