MCA (Revised)

Term-End Examination

June, 2021

MCS-041 : OPERATING SYSTEMS

Time : 3 hours *Maximum Marks : 100*

(Weightage : 75%)

Note : *Question no.* ***1*** *is* ***compulsory****. Attempt any* ***three*** *questions from the rest.*

1. (a) Consider the set of processes (P1, P2, P3, P4, P5) in the given table :

Process	Arrival Time	Processing Time
P1	0	3
P2	2	6
P3	3	1
P4	4	4
P5	5	4

For the following scheduling algorithms

(i) FCFS

(ii) Shortest Remaining Time Next

(iii) Round Robin (quantum = 2)

find average turnaround time, average waiting time, processor utilization and throughput of each scheduling. *10*

(b) Explain Lamport's Bakery algorithm for ordering of events in a distributed environment with an example. *10*

(c) Discuss Interprocess Communication in Windows 2000 operating system. *10*

(d) Define Context Switch. Explain the step-by-step process for process switching between two processes. *10*

2. (a) With the help of an example for each, explain the memory management techniques : Overlays and Swapping. *10*

(b) Define RAID technology. How is this implemented ? *10*

3. (a) Explain the following commands/utilities of UNIX : *10*

(i) Pipes and Filters

(ii) Redirecting Input and Output

(b) Discuss the working of Remote Procedure Call (RPC) with the help of a flow (activity) diagram. *10*

4. (a) Define a Distributed System. List its key features, advantages and disadvantages. *7*

(b) List and explain the design goals of Distributed Systems. *8*

(c) Discuss the characterisation of a Deadlock. *5*

5. Write short notes on the following : *4×5=20*

(a) Generation of Operating Systems

(b) Locks (synchronisation mechanism)

(c) NTFS of Windows 2000

(d) Demand Paging in UNIX