

School of Computing Science and Engineering

**Master of Computer Applications
Semester End Examination - Jun 2024**

**Duration : 180 Minutes
Max Marks : 100**

Sem II - E1PY207T - Operating Systems

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

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|----|--|-------|
| 1) | What is a Multitasking Operating system? | K1(2) |
| 2) | Differentiate between logical and physical address space. | K2(4) |
| 3) | Explain Process Control Block (PCB) with a neat Diagram. | K2(6) |
| 4) | Consider the set of 5 processes whose arrival time and burst time are given below- | K3(9) |

Process Id	Arrival-time	Burst-time
P1	0	5
P2	1	3
P3	2	1
P4	3	2
P5	4	3

If the CPU scheduling policy is Round Robin with time quantum = 2 unit, calculate the average waiting time and average turn-around time for each process

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|-----|---|--------|
| 5) | Given six memory partitions of 300 KB, 600 KB, 350 KB, 200 KB, 750 KB, and 125 KB (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of size 115 KB, 500 KB, 358 KB, 200 KB, and 375 KB (in order)? Rank the algorithms in terms of how efficiently they use memory. | K3(9) |
| 6) | Discuss Banker's Algorithm with Suitable example. | K5(10) |
| 7) | Consider the following page reference string 7,0,1,2,0,3,0,4,2,3,0,3,2, 1,2,0, 1, 7, 0, 1. How many page faults would occur for FIFO and OPTIMAL page replacement algorithm, assuming three frames? | K4(12) |
| 8) | Discuss various types of operating system. | K5(15) |
| 9) | Suppose that the head of moving head disk with 200 tracks numbered 0 to 199 is currently serving the request at track 143 and has just finished a request at track 125. If the queue request is kept in FIFO order, 86, 147, 91, 177, 94, 150, 102, 175, 130. What is the total head movement to satisfy these requests for i) FCFS II) SSTF disk scheduling algorithm. | K5(15) |
| 10) | Discuss all Interprocess communication Scheme in details. | K6(18) |