

QP Code : 25255

(3 Hours)

Note:

[80 Marks]

Question No.1 is Compulsory

Attempt any four Question between Question No.2 to 7

- Q 1. A) What is an Operating System? Explain the components and services. [10]
- B) Consider the following snapshot of a system [10]

Processes	Allocation			MAX			Available		
	R1	R2	R3	R1	R2	R3	R1	R2	R3
P0	0	1	0	7	5	3	3	3	2
P1	0	0	0	3	2	2			
P2	3	0	2	9	0	2			
P3	2	1	1	2	2	2			
P4	0	0	2	4	3	3			

Using Banker's algorithm

- a) What is the context of matrix need?
- b) Is the system in safe state? Give the sequences.
- c) If the request from P1 arrives for (1, 0, 2) can the request be granted immediately?
- Q 2. A) Consider the head of disk having 0-199 cylinders and currently is on track 100. Request Queue is 27, 129, 110, 186, 147, 41, 10, 64, 120. What are total head movements of the following algorithms? [08]
- a) SSTF    b) SCAN    c) CSCAN    d) FCFS
- B) What do you mean by process? Explain the 5-state process model in detail. [07]
- Q 3. A) Reference string 6 0 1 2 0 4 3 0 2 6 3 2 0 1 6 is given. How many page faults will occur for the following algorithms? [08]
- a) LRU, b) FIFO, c) Optimal Replacement.
- B) Explain bounded buffer, Reader Writer's, dining philosopher's problem in short. [07]

- Q 4. A) For the process listed in the table, draw Gantt chart and find the average waiting time and average turnaround time using: [08]
- a) FCFS, b) SJF(both preemptive and non-preemptive), c) Round Robin (quatum=2)

Process	Arrival Time	Processing Time
A	0	2
B	2	7
C	4	5
D	7	3

- B) Explain the disk structure with the diagram. What do you mean by disk reliability? [07]
- Q 5. A) Explain the file allocation methods in details with suitable example. [08]
- B) What do you mean by protection? Explain the access matrix. [07]
- Q 6. Write Short Notes( Any Three ) [15]
- System softwares
  - Process control block
  - Internal & External Fragmentation
  - Context-switching
  - DMA
- Q 7. A) What is deadlock? What are the necessary and sufficient conditions for deadlock occurrence? [08]
- B) What is the program threat? Explain the authentication and list the possible benefits. [07]