Duration: 3 Hours   **Total Marks: 100**

Q-1	Answer the following questions	20
(A)	What do you mean by OS? Describe Functionality of It.	
(B)	Write a detail note on Time sharing OS	
(C)	Write down difference between hard real time system and soft real time system	
(D)	Explain monolithic layered structure in detail.	

OR

Q-1	Answer the following questions	20
(A)	Explain Block diagram of an OS	
(B)	Explain batch processing system and its advantages and disadvantages.	
(C)	Write a detail note on Client-Server architecture.	
(D)	Explain distributed operating system.	

Q-2	Answer the following questions	20
(A)	Define the term process and explain process state diagram.	
(B)	Calculate the AWT, and ATT for the following list for process using FCFS, and SJF(Preemptive)CPU scheduling algorithms.	

Process	Arrival Time	Burst Time
A	0	12
B	2	6
C	3	3
D	4	6
E	5	3

OR

Q-2	Answer the following questions	20
(A)	What is deadlock? Explain the conditions, preventions, avoidance with deadlock detection and recovery.	
(B)	Calculate the AWT, and ATT for the following list for process using RR, and Priority (Preemptive) CPU scheduling algorithms (Time quantum 3ms).	

Process	Arrival Time	Burst Time	Priority
A	2	8	1
B	0	14	2
C	3	10	0
D	4	10	3

Q-3	Answer the following questions
(A)	Write a detail note on paging.
(B)	Consider the following page reference string

6,5,7,4,3,0,4,6,5,6,3,2,0,7,3,0,3,2,7,5,7,4,3,2,0,1
Calculate the number of page fault that will occur using FIFO, LRU, and OPR page replacement algorithm. (No of Frames 4)

OR

Q-3	Answer the following questions
(A)	Write a detail note on segmentation.
(B)	Consider the following page reference string

7,0,3,2,1,2,0,1,7,0,1,0,1,2,0,3,0,4,2,3,1,4,2,7
Calculate the number of page fault that will occur using FIFO, LRU, and OPR page replacement algorithm.(No of Frames 3)

Q-4   Answer the following questions   20
(A)   What do you mean by file explain the file attributes and operations in detail.
(B)   Write a detail note on directory structure with its all types
                                    OR
Q-4   Answer the following questions   20
(A)   Explain file access method in detail
(B)   Write a detail note on any two disk space allocation method with advantages and
       disadvantages

Q-5   Answer the following questions   20
(A)   Describe DMA controller with its block diagram
(B)   Write a detail note on Typical BUS structure
(C)   Define the terms : Caching, Spooling
(D)   Write a note on FIFO and SCAN disk scheduling algorithm with example
                                    OR
Q-5   Answer the following questions   20
(A)   Explain Hand Shaking Technique
(B)   Interrupt Handling mechanism
(C)   Define terms : I/O scheduling, Buffering
(D)   Write note on SSTF, C-SCAN
                         -----X----X-----