

- Note: i) All questions are compulsory.  
 ii) Draw neat diagram wherever needed.  
 iii) Figures to right indicate full marks.

Q.1 Attempt any two.

- Define Operating system and Explain Structure of Computer System. (10)
- Explain Clustered Operating System with advantages and disadvantages.
- Explain Role of compiler with its different phases.
- Write Short note on Linker and loader.

Q.2 Attempt any two.

- What are the different operating system services? (10)
- Explain layered structure of operating system.
- Explain work of kernel in detail.
- What are the different types of system calls?

Q.3 Attempt any two.

- Difference between process and threads. (10)
- Explain Producer consumer problem.
- What are the benefits of multithreading?
- Explain different types of scheduler.

Q.4 Attempt any two.

- Explain Concept of Demand paging. (10)
- Write a short note on segmentation.
- Calculate page fault for following reference string using LRU page replacement algorithm.  
 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1
- Write a short note on logical v/s physical address space.

Q.5 Attempt any two.

- Write short note on File mounting. (10)
- Explain deadlock with its four necessary conditions.
- Explain file operations.
- Explain concept of NFS Protocol.

Q.6 Attempt any two.

- Explain Application IO interface. (10)
- Explain Domain structure.
- Explain Different types of virus.
- Write short note on worm.



Q.7 Attempt any three.

(15)

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- a) Difference between compiler and interpreter.
  - b) Explain System boot process.
  - c) Calculate turnaround time according to SJF preemptive and non preemptive algorithm.

Process	Burst Time	Arrival time
P1	5	0
P2	2	1
P3	8	2
P4	4	3

- d) Write a short note on swapping
- e) Explain Resource allocation graph.
- f) Explain Access Control Matrix.