

- Note :-
- 1) Diagrams should be neat and labeled.
  - 2) All questions are compulsory.
  - 3) Figures to the right indicate marks.

Q. 1 Answer the following. (Any two)

- a) Explain Batch processing operating system?
- b) Define operating system with its list of classes?
- c) Write a short note on cluster operating system?
- d) Write a short note on Assembler?

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Q. 2 Answer the following. (Any two)

- a) Explain types of user-Interface for operating system?
- b) Write short note on virtual machine with its example?
- c) Explain various types of system calls?
- d) Write a short note on operating system generation?

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Q. 3 Answer the following. (Any two)

- a) Define process and process state in detail?
- b) Calculate average waiting time according to non-pre emptive SJF scheduling algorithm for :

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Process	Burst time
P <sub>1</sub>	7
P <sub>2</sub>	6
P <sub>3</sub>	8
P <sub>3</sub>	3

- c) Explain different multi-threading models.
- d) Explain the concept of semaphores.

4 Answer the following. (Any two)

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- a) Explain concept of swapping in detail.
- b) Write a short note on paging?
- c) Explain virtual memory with advantage and disadvantage
- d) Explain fregmentation and its types?

5 Answer the following. (Any two)

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- a) Explain different types of files?
- b) Write a short note on NFS.
- c) Explain Resource allocation graph.
- d) Explain the concept of deadlock prevention.

P.T.O.

**Q. 6 Answer the following. (Any two)**

- a) Write short note on Application I/o interface.
- b) Write short note on Domain structure.
- c) Explain various types of virus.
- d) Explain different security violation methods.

**Q. 7 Answer the following. (Any three)**

- a) Explain different phases of compiler with diagram.
- b) Write a short note on system boot?
- c) Explain various scheduling criteria.
- d) Calculate page fault for following string using FIFO page replacement algorithm.  
7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1
- e) Write a short note on deadlock and its necessary condition.
- f) Write a short note on worm?

— The End —