Roll No ....

MCADD-401
M.C.A. (Dual Degree/Integrated Course), IV Semester
Examination, May 2018
Operating Systems

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions.

        ii) All questions carry equal marks.

1. a) Explain the history of evolution of operating system with the generation of computer system in detail.			7

    b) What is Operating system? Explain the various services provided by operating system.			7

2. a) What is pre-emptive CPU scheduling? Compute average turnaround time and waiting time for pre-emptive shortest job first scheduling algorithm for the following data: 7

Job	Arrival Time	Burst Time
J1	0	4
J2	2	3
J3	5	6
J4	6	2

    b) What is Paging? Explain the design issues for Paging system.			7

3. a) A disk driver has 5000 cylinders from 0-4999. The drive is currently serving request at cylinder 143 and the previous request was at cylinder 125. The queue of pending request in FIFO order is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130. Compute total head movements using following algorithm: 7
   i) FCFC
   ii) SCAN

  b) Explain the concept of demand paging in detail.   7

4. a) Discuss the following disk scheduling algorithm: 7
   i) LOOK
   ii) C-SCAN

  b) What is Segmentation? Write advantages and disadvantages of this techniques.   7

5. a) Explain the Sleeping Barber problem with example in detail.   7

  b) What is Inter process communication? Explain the need of Inter process synchronization.   7

6. a) Differentiate between centralized and distributed operating system.   7

  b) Explain the UNIX operating system. What are salient features of UNIX operating system?   7

7. a) Explain critical section, critical region and conditional region in detail.   7

  b) How many page faults occur for an optimal page replacement algorithm for the following reference string with four page frames? 1, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2.   7

8. Write short notes on any two of the following: 14
  a) Banker's algorithm
  b) Belady's Anomaly
  c) Deadlock Avoidance

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