B.E. (Information Technology) Sixth Semester (C.B.S.)
Operating Systems

P. Pages : 2

Time : Three Hours

AHK/KW/19/2260

Max. Marks : 80

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Notes : 1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What is an operating system? List out Different types of O.S. 7

   b) List out and briefly different services of operating system. 7

OR

2. a) Differentiate between. 7
      i) User view and machine view.   ii) Loosely coupled and tightly coupled.

   b) Explain terms. 7
      i) Spooling.   ii) System call.

3. a) Explain different types of file access method in detail. 7

   b) Explain different file attributes. 6

OR

4. a) What are the various file allocation methods? Explain each with there merits and demerits. 6

   b) Suppose that a disk has 4000 cylinders numbered 0 to 3999. The drive is currently serving 7
      a request at cylinder 140 and the previous request was at cylinder 115. The que of pending
      request in FIFO is ordered as 85, 1502, 913, 1666, 948, 1023, 1850, 125. What is the total
      distance the disk arm moves following.
      i) FCFS.   ii) LOOK
      iii) SCAN.

5. a) What are different performance criteria for deciding scheduling. 7

   b) State the purpose and functioning of short term medium term and long term schedules. 6

OR

6. a) Calculate the average waiting time and average turnaround time for the following situation.   9

Process	Burst time	Priority	Arrival time.
P_0	5	1	1
P_1	7	3	5
P_2	6	2	0

    i) SJF.   ii) Priority.
    iii) RR (Time quantum = 2).

  b) Discuss context switching in brief.   4

7. Discuss the following terms   14
    i) Paging.   ii) Segmentation.
    iii) Thrashing.   iv) Logical and physical address space.

OR

8. a) What is memory fragmentation? Explain internal and external fragmentation.   5

  b) Consider the following page reference   9
    String – 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1.
    How many page fault would occurs for the following page replacement algorithm assuming 3 & 4 frames?
    i) FIFO   ii) LRU
    iii) Optimal.

9. a) Write short note on.   6
    i) semaphore   ii) Monitors.

  b) Explain Dining philosopher problems.   7

OR

10. a) What is critical section problem?   6

   b) What is reader-writer problems? List out ways to solve this problems.   7

11. a) Discuss the necessary condition required for deadlock to occur.   7

   b) Explain the various methods for deadlock prevention in detail.   6

OR

12. Explain the following term in detail **any two.**   13
    i) Banker's algorithm.   ii) Dynamic protection structure.
    iii) Access matrix.

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