M.C.A. SEMESTER-II (CBCS 2018) : SUMMER - 2019

SUBJECT: OPERATING SYSTEMS

Day: Tuesday
Date: 30/04/2019

S-2019-2155

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.:

1) Q 4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7, in Section II.
4) All questions CARRY EQUAL marks.
5) Answers to Both the sections to be written in ' SAME answer books.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

a) How operating system acts as a resource manager? Explain.
b) What are the various scheduling criteria for CPU Scheduling?

Q.2) Answer the following: (6 Marks X 2 = 12)

a) Explain the memory management with bit map. Give the advantages of it.
b) What are semaphores? Explain solution to producer-consumer problem using semaphores.

Q.3) Explain the following: (6 Marks X 2 = 12)

a) What is deadlock? What are the four necessary conditions for a deadlock to occur?
b) Explain implementation of file system.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

a) Command language users view of operating systems
b) Compaction
c) Reusable resources
d) Design principles of security
e) DMA transfer

SECTION - II

Q.5) Answer the following: (12 Marks X 1 = 12)

Consider the following case.

Job No.	Arrival Time (am)	Run Time (min.)
P1	10.00	7
P2	10.01	8
P3	10.06	2
P4	10.08	3

Find average waiting and turnaround time in case of:
a) FCFS b) SJF c) SRTN

Q.6) Answer the following: (12 Marks X 1 = 12)

Consider the following page reference string.

1,2,3,4,2,1,5,6,2,1,2,3,7,6

Assume physical memory with four page frames and all page frames are empty initially. Find out total number of page faults using FCFS and LRU.

Q.7) Explain the following: (12 Marks X 1 = 12)

Consider the disk with 100 tracks, numbered 0 to 99. Currently head is serving a request at track no. 47 and moving inside. Following is the queue of requests kept in the FIFO order.

86, 14, 19, 77, 94, 10, 48, 17, 46, 94, 70, 35, 68

Calculate total time required to move all these tracks using following disk scheduling algorithms. (Consider Seek time=0.40 sec.)

i) FCFS ii) SSTF

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