I.M.C.A. SEM–III (2014 COURSE) CBCS : WINTER - 2017

SUBJECT: OPERATING SYSTEMS

Day: **Friday**
Date: **10/11/2017**

Time: **02.00 PM TO 05.00 PM**
Max Marks. 100

W-2017-1664

N.B.

1) Attempt any **FOUR** questions from Section – **I** and any **TWO** questions from Section – **II**.
2) Figures to the right indicate **FULL** marks.
3) Both sections should be written in **SEPARATE** answer book.

SECTION - I

Q.1 Differentiate between: **(15)**

a) Shortest Job First and Shortest Remaining Time Next
b) Real Time Operating System and Online Operating System
c) Implicit tasking and Explicit tasking

Q.2 Explain the following: **(15)**

a) Process concept
b) Process state
c) Process control block

Q.3 What is segmentation? What are the advantages of segmentation? Also explain segmentation with paging. **(15)**

Q.4 Discuss producer-consumer problem and give the possible solutions for this problem. **(15)**

Q.5 What do you mean by file system? Explain various file access methods with their merits and demerits. Also give the file structure. **(15)**

Q.6 What is semaphore? Describe characteristics and queuing implementation of semaphore in detail. **(15)**

Q.7 Write short notes on the following : **(15)**

a) Conditional critical region
b) Disk space management
c) Demand paging

SECTION - II

Q.8 What is deadlock? What are the conditions for occurrence of deadlock? How to avoid it? **(20)**

Q.9 Consider the following case: **(20)**

Processes	Arrival time	Execution time (min.)
P1	10:00	9
P2	10:03	3
P3	10:08	4
P4	10:09	2

Calculate average waiting time and turnaround time in case of:

a) First come first served
b) Shortest remaining time next

Q.10 Consider the main memory with four page frames. Assume that all the page frames are initially empty. The pages are referenced in the order given below. **(20)**
1, 2, 3, 3, 1, 2, 3, 1, 0, 1, 3, 2, 1
Compute the total number of page faults in case of:
i) FIFO ii) LRU with matrix

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