

I.M.C.A. SEM-VII (2014 COURSE) CBCS : WINTER - 2017
SUBJECT: OPERATING SYSTEM CONCEPT

Day : Friday
Date : 10/11/2017

Time 02.00 PM TO 05.00 PM
Max. Marks: 100

W-2017-1680

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) Answer to both the section should be written in **SEPARATE** answer books.

SECTION-I

- Q.1** a) What is operating System? Explain structures of operating systems with their merits and demerits. (08)
b) Differentiate between online operating systems and real time operating systems. (07)
- Q.2** a) What is process? Explain process concept in detail. (08)
b) Discuss multiple level queues scheduling in detail. (07)
- Q.3** a) What is segmentation? Explain segmentation with paging with example. (08)
b) Discuss concept of virtual memory in brief. (07)
- Q.4** Explain the following terms: (15)
a) Critical region
b) Conditional critical region
c) Monitor
d) Messages
- Q.5** a) Describe Direct Memory Access transfer in detail. (08)
b) When does page fault occur? Describe the action taken by operating system when a page fault occurs. (07)
- Q.6** Short note on any TWO of following: (15)
a) Interrupt Handler
b) Directories
c) Design issues for paging

SECTION-II

- Q.7** What is deadlock? Give the conditions for occurrence of deadlock. Discuss various methods for the deadlock avoidance. (20)
- Q.8** Consider the following case: (20)

Process	Run time (min.)	Arrival time(am)
P ₁	9	10.00
P ₂	5	10.03
P ₃	4	10.05
P ₄	2	10.07

Explain the following algorithms and compare the average turnaround time and waiting time in case of:

- 1) FCFS 2) Shortest job first 3) Shortest remaining time next

- Q.9** Consider the following page replacement string: (20)
1,2,3,4,0,2,3,2,1,0,4,3,2,4,3,0,1
Explain the algorithm in detail and find out the page to be replaced at the end using LRU with Matrix.