

**M.C.A. SEM - III (CHOICE BASED CREDIT SYSTEM 2011 &
2012 COURSE) : WINTER - 2017
SUBJECT: OPERATING SYSTEM CONCEPTS**

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

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

W-2017-1695

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) Answers to both the sections should be written in the **SEPARATE** answer books.

SECTION-I

- Q.1** What is operating system? Explain various structures of operating systems with their merits and demerits. (15)
- Q.2** What is the need of scheduler? Explain various types of schedulers. (15)
- Q.3** Differentiate between: (15)
- i) Implicit tasking and Explicit tasking
 - ii) Online operating system and Real time operating system
 - iii) Synchronous and asynchronous message passing
- Q.4** Discuss segmentation with paging by giving suitable example. (15)
- Q.5** What are monitors? Write the need of it. Describe format of monitor with example. (15)
- Q.6** Write short notes on any **TWO** of the following: (15)
- a) Disk Space Management
 - b) Interrupt Handler
 - c) Semaphore

SECTION-II

- Q.7** Consider the following case. (20)

Process	In time	Run time (min)
P ₁	10.00	7
P ₂	10.03	2
P ₃	10.05	3
P ₄	10.06	1

Explain the following memory management algorithms and calculate average waiting and turnaround time in case of :

- i) SJF
- ii) SRTN

- Q.8** Suppose hard disk having 50 tracks and currently head is on track number 27 and moving outside. System want to read the data in the following sequence: 35, 26, 28, 17, 35, 47, 10, 15, 25, 30 Calculate total time required to move all these tracks for each of the following disk scheduling algorithms (here seek time = 0.3sec). (20)
- a) FCFS
 - b) SSTF
- Q.9** Discuss the producer consumer problem with example. (20)