2014

(Second Semester)

MASTER OF COMPUTER APPLICATIONS

Paper No: MCA 202

(Operating Systems)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer Question No 1 and **any four** from the rest

1. Answer the following questions briefly: **2x6 = 12**

a) Define process and show the different states of a process with a diagram.

b) Write a short note on Round Robin Scheduling Algorithm.

c) What is a semaphore?

d) Define throughput and turnaround time?

e) Differentiate between paging and segmentation?

f) What are the necessary conditions for a deadlock ?

2. a) What is Process Control Block? Explain its significance with a neat labeled diagram. **6**

b) Explain in brief the different functions of operating system. 6

3. a) Explain the producer/consumers problem with program module. 6

b) Explain critical section problem. State the different requirements that has to be satisfied to solve the critical section problem. 6

4. a) Explain Shortest Job First (SJF) Scheduling with an example. 6

b) Explain Demand Paging. What is the effect of demand paging on the performance of a computer system? 6

5. a) What do you understand by safe state? Explain the Safety algorithm and resource request algorithm of deadlock avoidance. 6

b) What are the different steps that can be followed to recover from a deadlock?Explain. 6

6. a) Explain FIFO,LRU and OPT replacement algorithms with suitable example diagrams. 6

b) Explain the different file allocation methods with diagrams. 6

7. a) Explain how paging is used as a memory management scheme using suitable diagram. 6

b) Explain any two page replacement algorithm with examples. 6

8. a) Explain in brief the different types of operating systems? 6

b) Explain Belady's anomaly? What is the cause of thrashing? 3+3= 6

**********II/MCA/202**********