(i) Printed Pages : 2

Roll No. ....

(ii) Questions : 9

Sub. Code : | 3 | 6 | 0 | 9 |

Exam. Code : | 0 | 4 | 5 | 9 |

M.Sc. Information Technology 1st Semester

(2122)

OPERATING SYSTEM CONCEPTS

Paper : MS-42

Time Allowed : Three Hours] **[Maximum Marks : 80**

Note :— Candidate is required to attempt **five** questions in all including Question No. **9** which is compulsory and attempt remaining **four** questions by selecting **one** question from each Section.

SECTION–A

1. Compare and contrast features and applications of multiuser, multiprogramming, multitasking and distributed systems in detail. 16

2. Discuss the function of a context switch. Elaborate working of RRS, multi level queue and multi level feedback queue highlighting their merits and limitations. 16

SECTION–B

3. Explain reader writer problem and producer consumer problems with illustrative examples. 16

4. Discuss necessary conditions for a system deadlock. Write a note on Bankers algorithm. 16

SECTION–C

5. Discuss the techniques for structuring of page table. Distinguish between paging and segmentation in detail with illustrative example. 16

6. Explain the relevance of demand paging. Compare and contrast features, merits and limitations of FIFO, Optimal and LRU page replacement algorithms. 16

SECTION–D

7. Describe various directory structures along with their merits and limitations. Write a note on access control for file protection. 16

8. Explain the following disk scheduling algorithms :
   - SCAN
   - C-SCAN
   - FCFS
   - SSTF. 16

(Compulsory Question)

9. (a) List major functions of operating system. 3

   (b) What do you understand by a process state ? 3

   (c) Write about race condition in process synchronization. 3

   (d) Distinguish between safe and unsafe state. 3

   (e) Define thrashing. 2

   (f) List advantages of RAID. 2