

S-757

Total Pages : 4

Roll No. -----

MIT(CS)-304

Introduction to Operating System

M.Sc. Cyber Security (MSCCS)

3rd Semester, Examination 2022(Dec.)

Time: 2 Hours

Max. Marks: 70

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

Section – A

(Long Answer – type questions)

Note: Section 'A' contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

[2 x 19 = 38]

P.T.O.

Q.1. What is Scheduler? What constitutes a good scheduling algorithm? Describe FCFS, Round robin and Priority scheduling?

Q.2. Define and detail Method for handling deadlock.
Consider the following snapshot of a system:

Processes	Allocation				Max				Available			
	0	0	1	2	0	0	1	2	1	5	2	0
P0	0	0	1	2	0	0	1	2	1	5	2	0
P1	1	0	0	0	1	7	5	0				
P2	1	3	5	4	2	3	5	6				
P3	0	6	3	2	0	6	5	2				
P4	0	0	1	4	0	6	5	6				

Answer the following question using Banker's Algorithm:

- (a) Draw the Matrix of Need
- (b) Is the system in safe state?
- (c) If the request from process P1 arrives (0,4,2,0) can the request immediately granted.

Q.3. What do you mean by Inter-process communication and Race Condition? Define and detail Peterson's solution.

Q.4. Explain the linking and loading concept with suitable diagram.

Q.5. Write a short note on the following:

- (a) Real Time system
- (b) Parallel Computing
- (c) System Calls
- (d) Virtual Memory
- (e) Thrashing

Section – B

(Short-answer-type questions)

Note: Section 'B' contains Eight (08) short-answer-type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

[4 x 8 = 32]

Q.1. Define Pre-emptive and Non Pre-emptive nature of scheduling algorithms. Explain the performance evaluation of the Scheduling?

P.T.O.

- Q.2. Define File and File management. Also detail the attribute and operation on to the file.
- Q.3. What is the difference between Multiprogramming and multi-processing system?
- Q.4. What are semaphores? Explain with suitable examples.
- Q.5. Define operating System? Explain the various functions of Operating system.
- Q.6. Compare and contrast a process and thread.
- Q.7. What are the advantages of multithreading?
- Q.8. Explain the difference and relationship between a program and process? What is process state explaining with the suitable diagram?
