TILAK MAHARASHTRA VIDYAPEETH, PUNE
MASTER OF COMPUTER APPLICATIONS
(Specialization in Artificial Intelligence & Machine Learning) / (Specialization in Data Science)/ (Specialization in Cloud Technology)
EXAMINATION :MAY - 2024
SEMESTER - I
Sub: Operating System Principles (MCAI 23-105/MCDS23-105/MCCL-23-105)

Date :27/05/2024	Total Marks : 60	Time: 2.00 pm to 4.30 pm

Instruction:
1. *All questions are compulsory unless and otherwise stated.*
2. *Bold figures to the right of every question are the maximum marks for that question.*
3. *Candidates are advised to attempt questions in order.*
4. *Answers written illegibly are likely to be marked zero.*
5. *Use of scientific calculators, Log tables, Mollier Charts is allowed.*
6. *Draw neat and labelled diagram wherever necessary.*

Q.1. **Answer the following in 2-3lines. (Any 5)** **(10)**
1. Define operating system (OS).
2. What is Cooperating Process?
3. What is Mutual Exclusion?
4. Define Contiguous Memory Allocation.
5. Define Security.
6. Describe components of process.
7. List out functions of operating system.

Q. 2. **Answer the following in short. (Any 4)** **(20)**
1. Differentiate between System Call and System Program in Operating System.
2. Explain Lifecycle of a thread.
3. Write a short not on Readers and writers problem.
4. Differentiate between paging and swapping.
5. Write a short note on:System Threats
6. Explain UNIX File Permissions.

Q. 3. **Answer the following in detail. (Any 3)** **(30)**
1. Explain OS services in detail.
2. For the following set of process find the average waiting time by using Shortest Job Next (SJN) algorithm.

Process ID	Arrival Time	Execution Time	Service Time
P0	0	5	0
P1	1	3	5
P2	2	8	14
P3	3	6	8

3. Explain Bound-Buffer problem algorithm in detail.
4. Explain File concept of OS in detail.
5. Explain Common administrative tasks in Unix system administration.

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