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BPP-1093

M.Sc. (Previous) Examination, 2022

COMPUTER SCIENCE

MCS-104

(Operating Systems)

Time : 3 Hours]

[Maximum Marks : 50

Section-A

(Marks : 2 × 10 = 20)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section-B

(Marks : 3 × 5 = 15)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **3** marks.

Section-C

(Marks : 5 × 3 = 15)

Note :- Answer any *three* questions out of five (Answer limit **500** words). Each question carries **5** marks.

Section-A

1. (i) What do you mean by Context Switch ?
- (ii) Explain Process States.
- (iii) What do you mean by Pre-emptive Scheduling ?

- (iv) Explain Throughput.
- (v) What do you mean by Critical Section Problem ?
- (vi) What do you mean by Avoidance ?
- (vii) Explain Virtual Memory.
- (viii) What do you mean by Directory Structure in Linux ?
- (ix) Explain different file permissions used in Linux.
- (x) What is the use of pwd command in Linux ?

Section-B

2. What do you mean by Threads ? Explain with suitable example.

Or

What is Process Scheduling ? Explain types of schedulers.

3. Explain SJF with suitable example.

Or

Explain Round Robin Scheduling with suitable example.

4. Explain Banker's Algorithm with example.

Or

What is Semaphores ? Write simple solution to Readers – Writers problem.

5. What do you mean by Shell and Kernel in Linux ? Explain the features of Linux.

Or

Explain physical and virtual address space with suitable example.

6. Write a shell script to print the reverse of given input number.

Or

Explain the following commands with syntax and example :

- (a) man
- (b) uname
- (c) chmod

Section-C

7. What is Operating System ? Explain distributed system and real time system. Describe any *two* functions of operating system.
8. Calculate average waiting time in shortest job first (SJF) and priority scheduling algorithm as given scenario :

Process	Burst Time (ms)	Priority
P1	7	2
P2	5	3
P3	3	4
P4	6	1

9. What is Deadlock ? Explain its prevention technique. How recovery from deadlock performed ? Explain.
10. What do you mean by Paging ? Explain LRU page replacement algorithm with example.
11. Explain different loop structure supported by linux ? Explain with suitable examples.