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B.M.S. COLLEGE FOR WOMEN, AUTONOMOUS
BENGALURU – 560004
SEMESTER END EXAMINATION – SEPTEMBER- 2023

B.Sc in Computer Science – 4th Semester

OPERATING SYSTEMS
(NEP Scheme 2021-22 Onwards)

Course Code: CS4DSC04
Duration: 2 ½ Hours

QP Code: 4016
Max Marks: 60

SECTION - A

I. Answer any TEN Questions. Each question carries TWO marks.

(10X2=20)

1. Define Operating System. Mention any two Operating Systems.
2. What is the necessary condition for deadlock?
3. What is demand paging.
4. Define aging.
5. What is the need for Inter-Process communication? Mention its two types
6. What is context switching?
7. What is pre-emptive scheduling?
8. Define mutual exclusion.
9. Differentiate logical and physical address.
10. Define seek time.
11. What is compaction
12. Consider a file with sample.txt how do you display the content of the file and how to calculate the number of characters, words and lines in a file?

SECTION - B

II. Answer any SIX questions. Each question carries FIVE marks.

(6X5=30)

1. Explain Time-Sharing and Distributed operating system.
2. Explain the critical section problem
3. Describe resource allocation graph with a diagram
4. Explain different CPU scheduling criteria.
5. Explain different file allocation methods.
6. Explain the following
 - I. pwd
 - II. rmdir
 - III. mkdir
 - IV. tty
 - V. Who
 - VI. write
 - VII. ls
 - VIII. split
 - IX. ps
 - X. cal
7. Explain Virtual Machines and its implementation.
8. Write a shell Script which accepts two file names as arguments. Compare the contents. If they are same, then delete the second file.

SECTION - C

III. Answer any ONE question. Each question carries TEN marks.

(1X10=10)

1. Consider the page reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,3 with 4-page frames. Find the number of page faults using LRU and optimal page replacement.
2. Suppose a system uses priority scheduling.

Process	Burst time	Priority	Arrival time
P1	8	3	0
P2	2	1	2
P3	4	3	4
P4	12	4	6
P5	11	5	8

- I. Draw the Gantt's chart illustrating the executing of the process using FCFS and priority.
 - II. Calculate the average waiting time and turnaround time.
3. Explain Dining philosopher's problem and its solutions.
