

Code No: 154BR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year II Semester Examinations, September/October - 2023

OPERATING SYSTEMS

(Computer Science and Engineering-Artificial Intelligence and Machine Learning)

Time: 3 Hours

Max. Marks: 75

- Note:** i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) What are operating system services? [2]
- b) What is parallel system? [3]
- c) What is turn around time? [2]
- d) Distinguish between wait() and waitpid() system calls. [3]
- e) What is critical section problem? [2]
- f) What are various methods to recover from deadlock? [3]
- g) What is page fault? [2]
- h) Distinguish between a page and frame. [3]
- i) What are the advantages and disadvantages of acyclic graph directory structure? [2]
- j) Write about stat() system call. [3]

PART – B**(50 Marks)**

2. Distinguish between multi programmed and time shared systems. [10]
- OR**
3. What are real time systems? What are different types of real time systems? Explain them. [10]
 4. Compute average waiting time for round robin and SJF scheduling algorithm for given data (time quantum is 2 units): [10]

Process id	Arrival time	Burst time
P01	0	5
P02	2	1
P03	3	8
P04	6	9
P05	7	3

OR

- 5.a) Explain multiprocessor scheduling.
- b) What are CPU bound and I/O bound processes? [5+5]

6. Explain banker's algorithm for deadlock avoidance with an example. [10]

OR

7. Explain interprocess communication using shared memory. [10]

8. What is demand paging? What is pure demand paging? What are various steps involved in page replacement? [10]

OR

9. Illustrate internal and external fragmentation with example. [10]

10. What are various file allocation methods? Explain them and list their merits and demerits. [10]

OR

11.a) What are various file access methods? Explain them.

b) Explain how file protection is achieved. [5+5]

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