

R18

Code No: 154BR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year II Semester Examinations, December- 2024/ January -2025

OPERATING SYSTEMS

(Common to CSE, IT, CSBS, CSIT, ITE, CE(SE), CSE(CS), CSE(AI&ML), CSE(DS),
CSE (IOT), CSE(N), AI&ML)

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 a system call? How is it different from a standard library function? [3]
- c) What is the purpose of fork() system call? [2]
- d) What is preemptive and non-preemptive scheduling? [3]
- e) What is a wait-for graph? State its purpose. [2]
- f) What is critical section problem? [3]
- g) What is logical address space? [2]
- h) What is demand paging? [3]
- i) Write about sequential file access method. [2]
- j) Explain open() system call. [3]

PART – B

(50 Marks)

2. Explain about batch and multiprogrammed systems. Also state their advantages and disadvantages. [10]
- OR**
- 3.a) Briefly explain about features of parallel and distributed systems.
 - b) What are real time systems? Explain about them. [5+5]
4. Calculate average waiting time and average turn around time using round robin and priority (preemptive and non preemptive) scheduling algorithms on following data(time quantum= 2ms): [10]

Process ID	Arrival time	Burst time(in ms)	priority
P01	0	6	1(highest priority)
P02	0	8	4
P03	1	5	5(lowest priority)
P04	3	7	3
P05	4	4	2

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OR

- 5.a) Explain multiple processor scheduling?
b) Explain exec() system calls with example. [5+5]
6. What is deadlock? How can it be prevented? Explain. [10]

OR

- 7.a) Give solution to readers writers problem using semaphores.
b) What are pipes? How can they be used for interprocess communication? [5+5]

8. Explain segmentation with paging memory management scheme in detail. [10]

OR

9. Explain LRU and optimal page replacement algorithms in detail. [10]

10. List and explain various file allocation methods with their merits and demerits. [10]

OR

- 11.a) What is a file? What are file properties?
b) Distinguish between acyclic graph directory structure and general graph directory structure. [5+5]

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