Reg. No. :

Question Paper Code: U4C03

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Fourth Semester

Computer Science and Business Systems

21UCB403-OPERATING SYSTEM

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	What are the objectives of operating system?	CO1- U
2.	Compare and contrast DMA and cache memory.	CO1- U
3.	Define CPU Scheduling.	CO1- U
4.	Distinguish between preemptive and non-preemptive scheduling.	CO1- U
5.	Define Starvation in deadlock.	CO1- U
6.	What is meant by Demand Paging?	CO2- App
7.	Define UFD and MFD.	CO1- U
8.	Differentiate between file and directory.	CO2- App
9.	List the advantages of virtualization.	CO1- U
10.	What are the Components of a Linux System?	CO1- U

PART – B (5 x 16= 80 Marks)

11. (a) Explain the concept of multiprocessor and Multicore organization.   CO1- U   (16)

Or

(b) What is a Process? Explain the Process Control Block and the various Process States.   CO1- U   (16)

12. (a) Define Semaphore? and Explain the Readers Writers Problem and its solution using the Concept of Semaphore.   CO1- U   (16)

Or

(b) (i) Illustrate about critical-section problem and Peterson's solution in concurrency.   CO1- U   (10)

(ii) Describe about Multithread Programming Model   CO1- U   (6)

13. (a) Consider the following pagereferencestring:1,2,3, 4, 2,1,5,6, 2,   CO2-App (16)
1,2,3,7,6,3, 2, 1, 2, 3, 6. Identify the no.of page faults would occur
for the following replacement algorithms, assuming one, two, three,
four, five, six, or seven frames? Remember all frames are initially
empty, so your first unique pages will all cost one fault each. a.LRU
replacement b. FIFO replacement c. Optimal replacement

Or

(b) Consider the following page reference string   CO2- App (16)

7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

How many page faults would occur for the following replacement
algorithms, assuming three frames that all frames are initially
empty?

  a. LRU page replacement.

  b. FIFO page replacement

  c. Optimal page replacement

14. (a) Explain the various disk scheduling techniques with an example.   CO1- U (16)

Or

(b) Describe various file allocation methods with the irrelative   CO1- U (16)
advantages and disadvantages.

15. (a) Briefly explain the architecture of androidOS?   CO1- U (16)

Or

(b) Illustrate the architecture of android OS with an example.   CO1- U (16)

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