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School of Computing
Second CIA Exam –May 2022
Course Code: CSE308
Course Name: Operating Systems
Duration: 90 minutes
Max Marks: 50

PART A

Answer all the questions   **(10 x 2 = 20)**

1. Differentiate process contention scope and System contention scope

2. Define- process affinity and its types

3. Discuss about the mutual exclusion implementation using compare_ and_ swap instructions.

4. Illustrate the resource allocation graph which represents the resource allocation with deadlock scenario with diagram

5. What are the types of semaphores? Which type has more restricted way of accessing the critical section? Why?

6. How the priority inversion problem can be eliminated. Explain

7. List out the requirements to solve critical section problem

8. How to solve the occurrence of the deadlock with prevention mechanism. List the conditions to be controlled for deadlock prevention

9. Suppose that a system is in an unsafe state. Verify that it is possible for the processes to complete their execution without entering a deadlocked state

10. What are the methods used to terminate the process to recover from deadlock

PART B

Answer any three questions   **(3x10=30)**

11. Consider the following matrix and vector for the banker's algorithm with 5 processes (P0-P4) and 3 resources (R0-R2) .Check whether the system is in safe state or not. Evaluate the safe sequence for the given 5 processes if it is safe.