**Experiment No: 8**

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| **Student Name and Roll Number:** |
| **Semester /Section:** |
| **Link to Code:** |
| **Date:** |
| **Faculty Signature:** |
| **Marks:** |

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| **Objective:** Write a program to implement reader/writer problem using semaphore |
| **Program Outcome**  The students will understand the reader/writer problem using semaphore |
| **Problem Statement:**  Write a program to implement reader/writer problem using semaphore |
| **Background Study:** There is a shared resource which should be accessed by multiple processes. There are two types of processes in this context. They are reader and writer. Any number of readers can read from the shared resource simultaneously, but only one writer can write to the shared resource. When a writer is writing data to the resource, no other process can access the resource. A writer cannot write to the resource if there are non-zero number of readers accessing the resource at that time. |
| **Question Bank:**   1. An un-interruptible unit is known as \_\_\_\_\_\_\_\_\_\_\_\_ a) single b) atomic c) static d) none of the mentioned 2. TestAndSet instruction is executed \_\_\_\_\_\_\_\_\_\_\_\_ a) after a particular process b) periodically c) atomically d) none of the mentioned 3. Semaphore is a/an \_\_\_\_\_\_\_ to solve the critical section problem. a) hardware for a system b) special program for a system c) integer variable d) none of the mentioned 4. What are the two atomic operations permissible on semaphores? a) wait b) stop c) hold d) none of the mentioned 5. When several processes access the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place is called \_\_\_\_\_\_\_\_ a) dynamic condition b) race condition c) essential condition d) critical condition |

**Student Work Area**

**Algorithm/Flowchart/Code/Sample Outputs**

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| **Objective: Objective**  To familiarize the students about CPU scheduling Algorithms |
| **Program Outcome**  The students will understand the Round Robin Algorithm. |
| **Problem Statement:**  Implement the Round Robin Algorithm. |
| **Background Study:**   * In Round Robin each process is assigned a fixed time slot in a cyclic way and this is preemptive. It has a disadvantage of context switch and have quantum time |
| **Question Bank:**   1. What is Preemptive and Non- Preemptive CPU scheduling? Explain with examples. 2. Explain the difference between short term, long term and medium term scheduling. 3. Explain the function of Dispatcher and Context Switch mechanism. 4. What are the advantages and disadvantages of Round robin? 5. Give the application are of Robin Robin. |

**Student Work Area**

**Algorithm/Flowchart/Code/Sample Outputs**