Section A

Attempt any two questions. [ 10\*2 = 20]

1. Explain Operating System as resource manager and extended machine. Distinguish between Time sharing Operating system and Batch operating system.
2. How Producer Consumer problem can be solved using sleep and wakeup primitives? How does semaphore solve the issues in sleep and wakeup solution?
3. Compare long term scheduler, middle term scheduler, short term scheduler with reference to process state. Consider following process data and compute average waiting time and average turnaround time for RR (quantum 10) and priority scheduling algorithms in pre-emptive mode (Higher the number higher is priority).

|  |  |  |  |
| --- | --- | --- | --- |
| PID | Burst Time | Arrival Time | Priority |
| P | 16 | 0 | 1 |
| Q | 37 | 12 | 2 |
| R | 25 | 7 | 3 |

Section B

Attempt any four questions. [ 4\*5 = 20]

1. What is critical section problem? Describe the criteria to be solved for solving this problem.
2. What is the purpose of system call? Differentiate between Thread and Process.
3. What is problem associated with semaphores? Explain the concept of monitors in brief.11
4. What is lock variable? Discuss its working and problems associated with it in detail.
5. What are the scheduling criteria? How does preemptive priority scheduling introduce starvation?