Report for assignment-3 Shreyas Marwah 2310110604

Ans 1) FCFS (First-Come, First-Served) executes processes in the order they arrive. It is a non-preemptive scheduling algorithm, meaning a process runs until it finishes before the next one starts. It is simple to implement but can lead to long waiting times, especially if a long process arrives first. This is known as the convoy effect.

Ans 2) SJF (Shortest Job First) selects the process with the shortest burst time first. It is non-preemptive, so once a process starts, it runs until completion. This reduces the average waiting time compared to FCFS. However, longer processes may have to wait for a long time if shorter ones keep arriving, leading to starvation.

Ans 3) SRTF (Shortest Remaining Time First) is the preemptive version of SJF. The process with the shortest remaining execution time is always given the CPU. If a new process arrives with a shorter burst time, it preempts the current process. This improves response time but can cause frequent context switching, leading to overhead.

Ans 4) Round-Robin (RR) scheduling assigns each process a fixed time slice (quantum) and executes them in a cyclic order. If a process does not finish within its time slice, it is moved to the end of the queue, and the next process gets CPU time. This ensures fairness and prevents starvation but may lead to more context switching if the time quantum is too short.

Ans 5) Priority Scheduling (Non-Preemptive) selects the process with the highest priority first. If two processes have the same priority, they are scheduled in FCFS order. Since it is non-preemptive, once a process starts, it runs until completion. This can cause starvation for lower-priority processes if high-priority processes keep arriving.

Ans 6) Priority Scheduling (Preemptive) works similarly to non-preemptive priority scheduling but allows a higher-priority process to preempt a running lower-priority process. This ensures important tasks get executed quickly but can lead to starvation of lower-priority processes. Aging techniques can be used to prevent this issue.