--Question Starting--
Match the following process scheduling algorithms with their primary characteristic behaviors:
1. FCFS (First Come First Serve) A. Preemptive scheduling with priority based on process arrival
2. Round Robin (RR) B. Non-preemptive, processes scheduled in the order of arrival
3. Priority Scheduling C. Time-slicing based preemptive scheduling with equal quantum
4. Shortest Job Next (SJN) D. Selects the process with the shortest expected CPU burst
Choose the correct answer from the options given below:
(1) 1-B, 2-C, 3-A, 4-D
(2) 1-B, 2-C, 3-D, 4-A
(3) 1-A, 2-C, 3-D, 4-B
(4) 1-D, 2-B, 3-C, 4-A
Answer Key: 2
Solution:
? FCFS: Processes are scheduled in the order of arrival without preemption, making it non-preemptive. It prioritizes fairness but can cause long waiting times.
? Round Robin: Implements time-slicing with a fixed quantum; each process gets an equal share cyclically, making it preemptive and suitable for time-sharing systems.
? Priority Scheduling: Selects processes based on priority, which can be preemptive or non-preemptive; here, preemptive priority scheduling preempts lower-priority processes.
? Shortest Job Next: Non-preemptive algorithm selecting process with the shortest expected CPU burst, minimizing average waiting time.
Hence, Option (2) is the right answer.

--Question Starting--
3. Match the following genetic algorithm components with their respective roles in the evolutionary process:
A. Encoding Strategies B. Fitness Functions C. Genetic Operators D. GA Cycle
1. Represent candidate solutions as binary strings or real-valued vectors A. Assigns a quality score to each individual based on problem-specific criteria
2. Combine two parent solutions to produce offspring B. Defines how solutions are represented and manipulated
3. Determines the likelihood of an individual being selected for reproduction C. Operations like crossover and mutation that generate new solutions
4. Repeats the process of selection, crossover, mutation, and evaluation until termination condition is met D. Iterative process progressing towards better solutions
Choose the correct answer from the options given below:
(1) 1-B, 2-C, 3-A, 4-D
(2) 1-A, 2-C, 3-B, 4-D
(3) 1-A, 2-B, 3-C, 4-D
(4) 1-C, 2-A, 3-D, 4-B
Answer Key: 4
Solution:
? Encoding Strategies (A): This involves representing solutions in a suitable format such as binary strings or vectors, critical for genetic operations.
? Fitness Functions (B): Quantifies how well a solution performs with respect to the problem, guiding selection.
? Genetic Operators (C): Operations like crossover and mutation that produce new candidate solutions from parents.
? GA Cycle (D): The iterative loop of selection, crossover, mutation, and evaluation to improve solutions over generations.
Hence, Option (4) is the right answer.