

--Question Starting--

Match the following scheduling algorithms with their primary characteristic behavior:

1. Scheduling Algorithm Characteristic

I. First-Come, First-Served (FCFS) A. Preemptive scheduling that always selects the process with the shortest remaining time

II. Shortest Remaining Time First (SRTF) B. Non-preemptive, processes are scheduled in order of arrival

III. Round Robin (RR) C. Preemptive, processes are given equal fixed time slices in cyclic order

IV. Priority Scheduling (Preemptive) D. Schedules based on priority levels, preempting lower priority processes

Choose the correct answer from the options given below:

(1) I-B, II-A, III-C, IV-D

(2) I-B, II-A, III-C, IV-D

(3) I-A, II-B, III-C, IV-D

(4) I-B, II-C, III-A, IV-D

Answer Key: 2

Solution:

- FCFS is non-preemptive, scheduling processes in the order they arrive?matching option B.

- SRTF preempts the current process if a new process with a shorter remaining time arrives?matching option A.

- Round Robin assigns equal time slices cyclically, characteristic C.

- Priority Scheduling preempts processes based on priority levels, matching option D.

Hence, Option (2) is the right answer.

--Question Starting--

3. Match the following aspects of a graph with their most relevant properties:

A. Connectivity B. Cycle detection C. Minimum spanning tree D. Shortest path

1. Depth-First Search (DFS) - - - -

2. Breadth-First Search (BFS) - - - -

3. Kruskal's Algorithm - - - -

4. Dijkstra's Algorithm - - - -

Choose the correct answer from the options given below:

(1) 1-B, 2-A, 3-C, 4-D

(2) 1-D, 2-C, 3-A, 4-B

(3) 1-A, 2-B, 3-C, 4-D

(4) 1-C, 2-D, 3-B, 4-A

Answer Key: 1

Solution:

- DFS is used to detect cycles by backtracking; it helps determine connectivity and cycle detection.

- BFS finds shortest paths in unweighted graphs; thus, it directly relates to shortest path.

- Kruskal's algorithm constructs a minimum spanning tree by selecting edges in increasing order of weight, ensuring no cycles.

- Dijkstra's algorithm computes the shortest path from a source to all vertices with weighted edges.

Hence, Option (1) is the right answer.