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FUNDAMENTASLS OF COMPUTING CAT 2

according to the scheduling of the given processes using different algorithms, at first we will summarize the processes with their burst times and priorities:

Table:

Process	Burst Time	Priority
A	20	10
B	6	6
C	8	3
D	6	2
F	1	10
G	1	16

1. LIFO (Last In, First Out)

In LIFO scheduling, the last process added to the queue is the first to be executed. Here, we will assume the order of processes is the same as listed.

Execution Order: G, F, D, C, B, A

Pipeline:

- G (1)
- F (1)
- D (6)
- C (8)
- B (6)
- A (20)

Waiting Time Calculation:

- G: 0
- F: 1 (0 + 1)
- D: 2 (1 + 1)
- C: 8 (1 + 1 + 6)
- B: 16 (1 + 1 + 6 + 8)
- A: 22 (1 + 1 + 6 + 8 + 6)

Waiting Times:

- G: 0
- F: 1
- D: 2
- C: 8
- B: 16
- A: 22

2. FIFO (First In, First Out)

In FIFO scheduling, processes are executed in the order they arrive.

Execution Order: A, B, C, D, F, G

Pipeline:

- A (20)
- B (6)
- C (8)
- D (6)
- F (1)
- G (1)

Waiting Time Calculation:

- A: 0
- B: 20 (0 + 20)
- C: 26 (20 + 6)
- D: 34 (26 + 8)
- F: 40 (34 + 6)
- G: 41 (40 + 1)

Waiting Times:

- A: 0
- B: 20
- C: 26
- D: 34
- F: 40
- G: 41

3. Priority Scheduling

In Priority Scheduling, processes are executed based on their priority (lower number = higher priority).

Execution Order: D (2), C (3), B (6), A (10), F (10), G (16)

Pipeline:

- D (6)

- C (8)
- B (6)
- A (20)
- F (1)
- G (1)

Waiting Time Calculation:

- D: 0
- C: 6 (0 + 6)
- B: 14 (6 + 8)
- A: 20 (14 + 6)
- F: 40 (20 + 20)
- G: 41 (40 + 1)

Waiting Times:

- D: 0
- C: 6
- B: 14
- A: 20
- F: 40
- G: 41

4. Round Robin Scheduling (Quantum = 6)

In Round Robin scheduling, each process is assigned a fixed time slice (quantum). If a process does not complete in its time slice, it is placed at the end of the queue.

Execution Order:

1. A (6)
2. B (6)
3. C (6)
4. D (6)
5. F (1)
6. G (1)
7. A (14)
8. A (6)

Pipeline:

- A (6)
- B (6)
- C (6)
- D (6)
- F (1)

- G (1)
- A (14)

Waiting Time Calculation:

- A: 0 (initial)
- B: 6 (A's first quantum)
- C: 12 (A's first quantum + B's quantum)
- D: 18 (A's first quantum + B's quantum + C's quantum)
- F: 24 (A's first quantum + B's quantum + C's quantum + D's quantum)
- G: 25 (A's first quantum + B's quantum + C's quantum + D's quantum + F's quantum)
- A: 31 (B, C, D, F, G, and remaining time of A)

Waiting Times:

- A: 31
- B: 6
- C: 12
- D: 18
- F: 24
- G: 25

5. Shortest Job First (SJF)

In SJF, the process with the smallest burst time is executed first.

Execution Order: F (1), G (1), B (6), D (6), C (8), A (20)

Pipeline:

- F (1)
- G (1)
- B (6)
- D (6)
- C (8)
- A (20)

Waiting Time Calculation:

- F: 0
- G: 1 (0 + 1)
- B: 2 (1 + 1)
- D: 8 (1 + 1 + 6)
- C: 14 (1 + 1 + 6 + 6)
- A: 22 (1 + 1 + 6 + 6 + 8)

Waiting Times:

- F: 0
- G: 1
- B: 2
- D: 8
- C: 14
- A: 22

Summary of Waiting Times

- **LIFO**: G: 0, F: 1, D: 2, C: 8, B: 16, A: 22
- **FIFO**: A: 0, B: 20, C: 26, D: 34, F: 40, G: 41
- **Priority**: D: 0, C: 6, B: 14, A: 20, F: 40, G: 41
- **Round Robin (Quantum = 6)**: A: 31, B: 6, C: 12, D: 18, F: 24, G: 25
- **SJF**: F: 0, G: 1, B: 2, D: 8, C: 14, A: 22