Branch : CSE & IT   Batch : English

Operating System
Process Management | DPP 04 |

[MCQ]
1. Long term scheduler operates on _____.
   - (a) Input queue
   - (b) Job queue
   - (c) Ready queue
   - (d) Device queue

[MSQ]
2. Which of the following scheduler works between disk and main memory?
   - (a) Long term scheduler
   - (b) Medium term scheduler
   - (c) Short term scheduler
   - (d) CPU scheduler

[MCQ]
3. The time spent by a process inside a CPU is known as _____.
   - (a) Waiting time
   - (b) Turnaround time
   - (c) Completion time
   - (d) Burst time

[MCQ]
4. Context switching is done by _____.
   - (a) Operator
   - (b) Scheduler
   - (c) Dispatcher
   - (d) Loader

[NAT]
5. Consider a system with 5 CPU's and 20 processes. Suppose X is the maximum number of processes that can be in the running state, Y is the minimum number of processes in the ready state, Z is the maximum number of processes in the block state. Calculate X + Y*Z?

[MCQ]
6. Which scheduler plays important role in "swapping"?
   - (a) Long term scheduler
   - (b) Medium term scheduler
   - (c) Short term scheduler
   - (d) None of these

[MSQ]
7. _____, is the time when process first enters into ready queue.
   - (a) Submission time.
   - (b) Arrival time
   - (c) Dispatch time
   - (d) Load time

[MCQ]
8. If n is the total time spent by a process since its arrival till its completion, and s amount of time process spent within CPU, it also requires to perform some input-output activity and there the process spent x amount of time. Which of the following is correct expression for the total time spent by process in Ready queue?
   - (a) $s - (n + x)$
   - (b) $x + (s - n)$
   - (c) $n + (s - x)$
   - (d) $n - (s + x)$

Answer Key

1. (b)
2. (a, b)
3. (d)
4. (c)

5. (5)
6. (b)
7. (a, b)
8. (d)

Hint & Solutions

1. (b)

Long term scheduler operates on Job queue and decides which program to be loaded in main memory. Long term scheduler decides which program should be fetched into main memory from Job queue.

Input queue: It is a collection of processes in storage that are waiting to be brought into memory to run a program.

Job queue: This queue keeps all the processes in the system.

Ready queue: This queue keeps a set of all processes residing in main memory, ready and waiting to execute.

Device queue: This queue contains the processes which are waiting for the completion of I/O request.

2. (a, b)

A long-term scheduler is a scheduler that is responsible for bringing processes from the JOB queue (or secondary memory) into the READY queue (or main memory). In other words, a long-term scheduler determines which programs will enter into the RAM for processing by the CPU.

Medium term scheduler operates between Suspend queue (in disk) and block/wait state or ready state (in main memory).

Short term scheduler or CPU scheduler works between ready queue (in main memory) and running state (in main memory).

Therefore, a, b are correct option.

3. (d)

The time spent by a process inside a CPU or the time a process run on the CPU is known as Burst time.

4. (c)

Context switching is an activity carried out by Dispatcher that involves saving the PCB of process leaving the CPU and loading the PCB of next ready process onto CPU. Total time required to load and save the PCB is known as context switching time.

5. (5)

Maximum 5 processes can run on 5 CPUs at a time. So, X = 5

Minimum there can be 0 or no process present in ready state. So, Y= 0

Maximum there can be 20 processes present in the block queue. So, Z = 20

Therefore, X + Y*Z = 5 + 0*20 = 5

6. (b)

Medium term scheduler is also known as "Swapping scheduler". Its main objective is to swap out the suspended processes from the main memory. It operates on Suspend queue to swap-out and swap-in processes.

7. (a, b)

Arrival time/ Submission time is the time when process first enters the system. It is the arrival time when process is selected by Long term scheduler from new state and sent to ready queue. Arrival time is also known as submission time, therefore a, b both are correct.

8. (d)

The total time spent by a process since its arrival till its completion is known as turn around time. So, Turnaround time = n.

Amount of time spent within CPU is known as burst time. So, burst time = s.

Amount of time spent by a process in performing I/O activity is known as IO Burst time. So, IOBT = x

The question is asking, the total time spent by process in Ready queue, which means total waiting time.

WT = Turnaround time – (Burst time + IOBT)

WT = n – (s+ x)

Therefore, option D is the correct answer.

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