


University: Damanhour University Faculty: Computers and Information Academic level: Level – 3, 1st Semester Course Name: Operating Systems (CS 321) Academic Year: 2022/ 2023		Exam Type: Quiz-1 Date: 10/12/2022 No. of Questions: 3 Mark: 15 Marks Examiner: Dr. Omar Shaheen
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Answer the following questions:

Q1: Draw the diagram of five process states and its queue.

Q2: Each process is represented in the operating system by a process control block (PCB). What are the main components of PCB and the information associated with each component?

Q3: Consider the following set of processes, with the length of the CPU burst given in milliseconds:

<u>Process</u>	<u>Arrival Time</u>	<u>Burst Time</u>
P ₁	0	8
P ₂	1	4
P ₃	2	9
P ₄	3	5

If the processes arrive at the ready queue at the times shown and need the burst time.

- a. Draw the Gantt charts that illustrate the execution of these processes using the following scheduling algorithms:
 - 1) FCFS
 - 2) Nonpreemptive SJF
 - 3) Preemptive SJF
- b. Calculate the average waiting time, average turnaround time, average response time for all algorithms.
- c. Which of the algorithms results in the minimum average waiting time?

With my best Wishes