# New York University

**CSCI-UA.0202-003: Operating Systems (Undergrad): Spring 2025**

# Quiz 4

- Write your full name on both:
  - the bubble sheet in the "Name" field
  - the quiz booklet
- Write your NYU NetID on the quiz booklet and the bubble sheet in the "ID" field
- Use a #2 pencil to fill in your answers on the bubble sheet
- This quiz contains 6 questions only. Each question has choices from A to D
- Fill the bubbles completely by darkening the entire circle, as shown in the example
- Only mark answers for questions 1-6. Do not mark any bubbles beyond question 6
- Choose only one answer per question
- Submit your bubble sheet together with your exam booklet

**Name:**

**NetId:**

1. Which of the following best illustrates the problem with the FCFS/FIFO scheduling algorithm?
   (a) Too many context switches causing high overhead
   (b) Requires predicting future CPU bursts
   (c) Short jobs can get stuck behind long ones, increasing average turnaround time
   (d) Processes may starve if they have low priority

2. How many virtual memory translations occur when running the instruction `movq 0x200000, %rax` (assuming the process has not fetched the instruction yet")?
   (a) 0
   (b) 1
   (c) 2
   (d) 3

3. In the context of multi-level page tables, what is the primary benefit compared to linear page tables?
   (a) Faster translation time
   (b) Smaller page sizes
   (c) Increase the address space
   (d) More efficient use of memory when address space is sparsely used

4. In a lottery scheduling system, what does the percentage of tickets assigned to a process represent?
   (a) The process's guaranteed minimum CPU time
   (b) The process's share of system resources
   (c) The process's priority level
   (d) The process's maximum allowed CPU time

5. In a Round Robin scheduler with a quantum of 1ms, which metric is likely to be improved compared to FCFS (assuming the running time of each job in the system varies a lot)?
   (a) System throughput
   (b) CPU utilization
   (c) Response time
   (d) Context switching overhead

6. When does a context switch occur in a non-preemptive scheduling algorithm?
   (a) When a process switches from running to waiting state or exits
   (b) When a process switches from running to ready state
   (c) When a process switches from waiting to ready state
   (d) All of the above