New York University
CSCI-UA.0202-003: Operating Systems (Undergrad): Spring 2025

Quiz 6

- 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 is NOT typically stored in an inode?
   (a) File size and permissions
   (b) Timestamps (access, modification, status change)
   (c) Block pointers to the file's data
   (d) Filename

2. In the Unix inode structure, why is it intentionally imbalanced with direct, single indirect, double indirect, and triple indirect pointers?
   (a) To reduce the average number of disk seeks for large files
   (b) To optimize for short files while supporting very large files when needed
   (c) To ensure disk writes are atomic
   (d) To provide better security for critical system files

3. What happens when reading data sequentially from disk compared to random access?
   (a) Sequential reads are slower because they require more disk head movement
   (b) Sequential reads are much faster because they minimize seek operations
   (c) Sequential and random reads have identical performance on modern disks
   (d) Sequential reads always require one full disk rotation per block

4. What happens if the operating system doesn't use read-ahead when accessing sequential blocks on a disk?
   (a) The system will crash due to buffer overflow
   (b) The system will have to wait for almost a full disk rotation to reach each subsequent block
   (c) Files will become corrupted over time
   (d) The file system will automatically switch to random access mode

5. What happens when a file is opened in a Unix-style file system?
   (a) The entire file is loaded into memory
   (b) The file's inode is loaded into memory
   (c) A new inode is created for the file
   (d) The filename is registered in the active process table

6. What is the "settle" phase in a disk seek operation?
   (a) The period when the disk rotation speed stabilizes after powering on
   (b) The fine adjustment of the head to the actual desired track after reaching the approximate location
   (c) The process of writing data to verify track positioning
   (d) The cooling period after an intensive read/write operation