



İTÜ Computer Engineering Dep.
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Student ID:
First Name and Last Name:
Signature:

BLG 322E COMPUTER ARCHITECTURE FINAL EXAM

Regulations:

1. The duration for this question is **35 minutes**.
2. **You may not ask any questions during the exam.** If you think something is missing in a question, explain it, make the necessary assumption, and solve the question.
3. Any cheating or any attempt to cheat will be subject to the University disciplinary proceedings.
4. Your solution must **be all hand-written and signed by you**.
5. Please **show all your work**. Answers with no supporting explanations or work will be given no partial credit. If we cannot read or follow your solution, no partial credit will be given. PLEASE BE NEAT.

QUESTION 3 (30 points).

You are given a computer system equipped with a disk system composed of 20 disks. Each one of these 20 disks has the following characteristics:

Each disk has a seek time of 6ms, a rotational speed of 10000 RPM. Each disk has 600 sectors per track and each sector has 512Bytes of storage.

Assume that, on this system each I/O operation on the average 100 sectors and every sector access requires a seek time. Each disk can handle only one request at a time but each disk in the system can be handling a different request. The data is not striped (all I/O for each request has to go to one disk).

Based on these assumptions;

- a) What is the average time to serve one I/O request for this system?
- b) What is the maximum number of I/O operations per second for the system?