Summer 2017
Exam 3
07/21/2017

This exam contains 2 pages (including this cover page) and 5 questions.

Instructions

1. *Read every question very carefully.*
2. *You should be able to finish this exam in an hour.*
3. *For descriptive questions, please complete the answer in 5-10 sentences.*
4. *Please try to submit soft copies. If you are planning to submit scanned copies of hand-written answers, please make sure they are very clear.*
5. *Please join all the scanned copies or images to one PDF file and upload that final file to D2L.*
6. *Total points for the exam is 100.*
7. **Late submissions minus 10 points.**

Grade Table (for teacher use only)

Question	Points	Score
1	20	
2	20	
3	20	
4	20	
5	20	
Total:	100	

---

1. (20 points) Explain the skeleton of a simple GPU program (assume the program is a simple vector addtion).

2. (20 points) Explain the following:
   (a) (10 points) ACID properties
   (b) (10 points) CAP theorem

3. (20 points) Explain the following terms in the context of Internet
   (a) (5 points) IP address
   (b) (5 points) Application protocol
   (c) (5 points) Transmission Control Protocol (TCP)
   (d) (5 points) Internet Protocol (IP)

4. (20 points) From the Table 1, Which computer (System A or System B) will you buy (assume they have the same price) and give reasons for your decision.

Program	Execution frequency	Execution time (A)	Execution time (B)
Vector addition	50%	50	50
Matrix multiplication	30%	250	300
Matrix transpose	20%	100	80

Table 1: Benchmark program execution time comparison of System A and System B

5. (20 points) Name and explain the four different approaches of CPU scheduling.