Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Attach your answers in this word document right after the related questions.

Email me your answers and make sure I receive your email before you leave.

Problem 1. Cloud Computing.

1. What will be a break-even point for a Large Window Instance in US East region if we only compare the cost of hours usage between on-demand instance charge and 1 year term reserved instance charge, i.e., how many hours of usage will make 1 year term reserved instance cheaper?
2. Assume we are setting up three EC2 small Linux instances with web servers from three regions of AWS. We will run each instance consecutive 8 hours only and try to cover 24 hour operation globally, assume heavy accesses of majority users on the site will be only from 5pm-1am.
	1. What are your three picks? Justify that.
	2. Assume the Elastic IP address can only be used in the same region, not cross regions. How do you solve the problem of domain name to IP address mapping?
	3. How will you setup these three instances to run automatically every day?
3. Why Netflix choose Amazon instead of using Akamai for their streaming services? Name two main reasons.

Problem 2. Wireless Sensor Networks (WSN).

1. What is the unique communication pattern in WSN that was different from unicast, broadcast, and multicast?
2. What are unique constraints of WSN devices? Name at least four.
3. What are the main challenges in distributed cluster formation problem? List two.

Problem 3. Content Switch

1. What factors impact on the performance of a content switch?
2. How can we speed up the performance of a content switch?
3. What is TCP delayed binding? Name two ways to improve it?
4. Why the current browser cannot pipeline (send concurrently) the embedded requests through the same TCP connection?

Problem 4. Answer only three of the following seven questions related to the semester projects.

|  |  |
| --- | --- |
| 1. Altarouti, Feras Ali; Raavi Anvesh; Roshnee Ravikumar
 | [Secure Discovery Information Delivery](http://cs.uccs.edu/~cs526/studentproj/projS2012/faltarou/doc/SDD%20presenatation.pptx) |
| Question 1: 1. What is the purpose of the project? Hint: Page #3.
2. What protocol and port number are used to deliver the “discovery” info? Hint: Page #4.
3. How will the design protect directory info from being browsing by customers? Hint: Page #4.
 |
| 1. Hofflander, Brian James and Berck Nash
 | [Fraudulent Online Consumer Reviews: Detection and Prevention](http://cs.uccs.edu/~cs526/studentproj/projS2012/bhofflan/doc/Fraudulent%20online%20customer%20reviews.pdf) |
| Question 2: 1. What are three types of review spam?
2. How to detect type 1 spam?
 |
| 1. Faris Kateb, Mohammad Ahmed, Omar Alzahrani
 | [Web Application with AJAX](http://cs.uccs.edu/~cs526/studentproj/projS2012/mahmed/doc/Web%20Application%20with%20AJAXV1.pptx) |
| Question 3: 1. What is the object used in Javascript code to achieve fast web interaction in AJAX?
2. What are two AJAX vulnerabilities discussed in this presentation?
 |
| 1. Hanson, Cody Lawrence and Craig Odell
 | [Automated Trending of Residential Broadband Performance](http://cs.uccs.edu/~cs526/studentproj/projS2012/codell/doc/CS526Presentation.pdf)  |
| Question 4:1. What are measured for UDP traffic?
2. What is the main difference in terms of setup requirements between their design and those provided by Speedtest.net, speakeasy.net, or ISP provided tests?
 |
| 1. Nesterenko, Matthew Alexander
 | [Online/Offline Database Synchronization using SOAP](http://cs.uccs.edu/~cs526/studentproj/projS2012/mnestere/doc/dbsync.pptx) |
| Question 5: 1. Who is in control of the sync, client or server? Hint: page #4.
2. How to avoid comparing all records in order to see what has changed?
 |
| 1. Alharthi, Ahmed and Alsahafi, Abdulrhman I
 | [Authenticated control to VMs in Xen cloud](http://cs.uccs.edu/~cs526/studentproj/projS2012/aalsahaf/doc/Authenticated-control-to-VMs-in-Xen%20cloud%20%20.pptx) |
| Question 6:1. What are the three goals of this project?
2. What is the name of the command line API which is used to perform operations on the Xen Cloud hosts?
 |
| 1. Best, Adam
 | [Mobile Development](http://cs.uccs.edu/~cs526/studentproj/projS2012/abest/doc/abestMobileDevelopment.pptx) |
| Question 7:1. What are challenges in cross mobile platform development? List at least three key ones.
2. Appcelerator uses Javascript-based SDK to develop native applications that perform like native applications in Objective-C (iPhone/iPad) or Java (Android Phone/tablets). What are the main advantages and what are the main disadvantages of the approach (name one each)?
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