**ENCS 691K – Fall 2015**

**Cloud Networking and Service Provisioning**

**Final Exam**

**Note: Please answer each question to the best of your understanding. No additional information will be provided during the quiz.**

### Question #1

1. Why is server consolidation needed?
2. Give an example of drawback of suspend and copy live migration technique
3. Give 2 examples of XEN design goals.

### Question #2

1. Give an example of difference between VMWare Vsphere and Openstack.
2. What does bare metal provisioning mean in the context of Openstack?
3. Give an example of advantage offered by bare metal provisioning in Openstack and give also an example of disadvantage.

### Question #3

1. What is the difference between a data center network and an Internet Service Provider (ISP) network from topology perspective?
2. What is a fat tree topology?
3. What does a data center consist of?

### Question #4

1. Give 2 examples of differences between SCTP and TCP
2. How many windows does a TCP sender maintain and what are they used for?
3. Give 2 examples of reasons for which TCP is not suitable for data center networking

### Question #5

a. Let us assume we have a browser located on a node of a wireless local area network (WLAN), and a wireless sensor located on another node of the same WLAN. Let us further assume that the wireless sensor supports CoAP. If we build a gateway between the browser and the wireless sensor in order to display the information collected by the sensor, which protocols will be mapped onto which protocols inside the gateway?

b. Give an example of shortcoming when it comes to the use of cloud processing power and storage for provisioning wireless sensor network applications.

c. What are the 2 types of network level virtualization for wireless sensor networks?