**Exam #2 (Unit 2 Exam) – Coverage by topics**

Unit2: Cloud Computing

Lecture 7: Introduction to CC

Idea, definition, origin, essential characteristics

Lecture 8: Evolution

Similarities and differences with parallel, distributed and grid computing

Lecture 9: Models

1. Delivery models or service levels

SaaS, PaaS, IaaS (DaaS, DBaaS)

1. Deployment models

Public, private, hybrid, community

Lecture 10: Evolution

Brief history

Google: (1) popular cloud services provided by Google; (2) advanced technology such as GFS, MapReduce distributed computing model/paradigm

AWS: (1) popular cloud services provided by AWS (2) what we practiced

Lecture 11: Hadoop and Spark

Implementation of MapReduce, HDFS, Hadoop architecture, basic Hadoop operation principles, selected components of Hadoop ecosystem

Spark RDD, Spark vs. Had

Lecture 12: Security

Issues, challenges, small case studies, solutions (?? – open question)

Lecture 13: Architecture

Severs: HPC, Data Ctr, WSC

Networks (basic concepts): fat tree, SANs, DCNs, CDNs

Storage (basic concepts): UFS, NFS, GPFS, GFS (Google File System), MegaStore, DynamoDB, …

Lecture 14: Virtualization (basic concepts)

Common virtualization applications: VirtualBox, VMWare (Pro costs money), Hyper-V, …

Interfaces (ISA, ABI, API)

VMM/Hypervisor, type of VMs (traditional, hybrid, host – based on textbook classification)

Full virtualization vs paravirtualization