

Name of the student:

Matriculation Number:

## Basics of Cloud Computing

Spring 2015

Date: Model

Total duration: 2 Hr

Total Marks: 100

1. Please explain how cloud computing is efficient in terms of economy both for the clients and data centers. What are the main considerations in establishing a data center? (6 Marks)
2. Explain different types of cloud services. (4 Marks)
3. What are the main considerations in establishing a data center? (4 Marks)
4. Explain in detail 5 challenges associated with cloud computing. (6 Marks)
5. Explain Map and Fold functions in Functional programming and provide the pseudo code for calculating the sum of the cubes of the elements in a list. (6 Marks)
6. Please explain the Amazon cloud services EC2, S3, EBS. Elaborate why they are required, when they are used and differences among them, if any. (8 Marks)
7. Please describe OpenStack and its three major components. (6 Marks)
8. Explain the distributed sort algorithm using MapReduce. (6 Marks)
9. Please explain the pairs and stripes examples discussed in the lecture and explain how synchronization is achieved in both the cases in solving the conditional probabilities problem. Explain conditional probability equation and give MapReduce algorithms of both approaches. (10 Marks)
10. Please explain the main activities of the MapReduce execution framework. Elaborate them in detail. (8 Marks)
11. What are the key characteristics, advantages and disadvantages of PaaS. (6 Marks)
12. Discuss scientific computing on the cloud and its limiting factors. (6 Marks)
13. Discuss autoscaling on cloud along with Amazon Autoscale mechanism. (6 Marks)
14. How can you implement complex data types in Hadoop? Please provide two approaches. (6 Marks)
15. Please explain limitations of Hadoop MapReduce and discuss two alternatives. (6 Marks)
16. Please discuss the user identity and access management in cloud. Why it is required and how the cloud can be used by a group of people. Consider IAM of Amazon for your reference. (6 Marks)