**DISTRIBUTED SYSTEMS & CLOUD COMPUTING LAB**

PRE LAB THEORY QUESTIONS – 2021-22 BATCH

**WEEK 1**

1. Define a Socket. Recall the constructors of the following classes from java.net package
2. Socket
3. ServerSocket
4. DatagramSocket
5. DatagramPacket
6. Define a Port Number. Illustrate the various types of port numbers used for applications
7. Explain how TCP & UDP communication happens with the help of a neat sketch.

**WEEK 2**

1. What is the difference between REST and SOAP Web services?
2. What are the advantages of having XML based Web services?
3. How many Communication protocols can be used to implement a SOAP message? Is SOAP messages are tied to any protocol?

**WEEK 3**

1. Discover the applications of the types of Multicast?
2. Differentiate between Clock Drift & Clock Skew?
3. Determine the role of logical and vector clocks used for synchronizing distributed processes

**WEEK 4**

1. Differentiate between a Flat & Nested Transaction
2. Explain the various operations performed in a 2 Phase Commit transaction
3. In 2PC protocol, the coordinator failure is considered as the major disadvantage of 2PC protocol. Why?

**WEEK 5**

1. Explain how do we decide when to use node.js and when not to use it?
2. What IDEs can be used for nodejs application development?
3. Explain how does Nodejs work and determine its relationship with v8 engine?

**WEEK 6**

* + - 1. Compare any two popular Cloud Service Providers?
      2. Where do you think an AMI fits, when you are designing an architecture for a solution?
      3. How is stopping and terminating an instance different from each other in Amazon EC2?

**WEEK 7**

1. What is Google Cloud Platform?
2. How are the Google Compute Engine and Google App Engine related?
3. Write different steps to get connected to use Google Cloud Shell to connect to a project running on different region or a zone

**WEEK 8**

1. How do I connect Google cloud to SQL?
2. Suppose you have deleted your instance by mistake. Will you be able to retrieve it back? If yes, how?
3. What database does Google Cloud SQL offer?

**WEEK 9**

1. What happens when AngularJS based application page loads in the browser?
2. Difference between Javascript, JQuery and AngularJS?
3. What are the advantages of AngularJS?

**WEEK 10**

1. Difference between virtualization and containerization
2. What is the lifecycle of a Docker Container?
3. How do you create a docker container from an image?

**WEEK 11**

1. How do you get the number of containers running, paused and stopped?
2. How is AWS Elastic Beanstalk different from existing application containers or platform-as-a-service solutions?
3. Write short notes on Hadoop Distributed File System

**WEEK 12**

1. What happens when two clients try to access the same file in the HDFS?
2. How does NameNode tackle DataNode failures?
3. What will you do when NameNode is down?