



VII SEMESTER B.TECH. COMPUTER SCIENCE AND ENGINEERING
END SEMESTER MAKE-UP EXAMINATIONS, DECEMBER 2019

SUBJECT: DISTRIBUTED AND CLOUD COMPUTING [CSE 4102]

REVISED CREDIT SYSTEM
26.12.2019

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL FIVE** questions.
- ❖ Missing data may be suitable assumed.

- 1A.** Define marshalling and construct CORBA CDR message using the following CORBA IDL for Person structure with an example. **4M**

```
struct Person{
    String name;
    String place;
    Unsigned long year;
};
```

- 1B.** Explain in detail the design requirement of distributed systems. **3M**
- 1C.** Explain in detail the different failure models of a distributed system with a necessary diagram. **3M**
- 2A.** What are the different choices of RMI invocation semantics? Explain in detail how different delivery guarantees are assured using these invocation semantics? **4M**
- 2B.** Explain with a neat diagram, how concurrency and collaboration is achieved in distributed mutual exclusion algorithm? **3M**
- 2C.** What is the problem encountered in Lamport's logical clocks? Explain in detail, how this is solved using Vector clocks algorithm? **3M**
- 3A.** There are 8 processes in a group numbered from 0 to 7. Process 4 noticed the crash of process 7. Explain the method of electing new coordinator using bully algorithm in the given scenario with a neat diagram. **4M**
- 3B.** Explain the following client centric consistency model with a suitable example and a necessary diagram. **3M**
- a) Monotonic Write
 - b) Read Your Write
 - c) Write Follows Read

- 3C.** What is cloud computing? What are the different features of cloud computing model which helps to enable the services and expectations of consumers? **3M**
- 4A.** Explain Client Caching and Server Caching in Sun Network File System. **4M**
- 4B.** Describe the challenges and risks associated with Cloud Computing services. **3M**
- 4C.** With the help of neat labeled diagrams explain the life cycle of a Virtual Machine and the steps involved in provisioning a virtual server in a cloud computing environment. **3M**
- 5A.** Explain the following with respect to Hadoop Distributed File System **4M**
- a) Heartbeat Signal and Block Report
 - b) Checkpoint and Checkpoint Node
 - c) Snapshot and BackupNode
 - d) Balancer and Decommissioning
- 5B.** Explain Map reduce programming model with a word count example. **3M**
- 5C.** What are the different phases of SLA management in cloud? **3M**
