POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2019
Programme: BE Full Marks: 100
Course: Distributed System Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) How distributed system is different from distributed operating system? Explain different system models. 7
   b) What is IPC? Explain distributed object model. 8
2. a) What are the major roles of middleware system? Explain the invocation semantics of RMI. 7
   b) What is Name services? Explain different name resolution techniques with appropriate example. 8
3. a) What do you mean by causal ordering of messages? Explain vector clock synchronization algorithm. 7
   b) Differentiate logical clock with physical clock. Explain the Cristian's algorithm for physical clock synchronization. 8
4. a) Why do we need a mutual exclusion? Differentiate Lamport's distributed mutual exclusion algorithm with Ricart Agrawala distributed mutual exclusion algorithm. 7
   b) What are the major advantages and disadvantages of centralized controlled system? How multiple ongoing election is handled using ring based election algorithm. 8
5. a) What is error, fault and fault tolerant? Explain fault tolerance mechanism using active replication. 7
   b) Define group communication? Explain reliable multicasting. 8
6. a) Explain the different properties of transaction. Explain different distributed deadlock detection techniques. 7
   b) What is nested transaction? Explain different concurrency control mechanism. 8

7. Write short notes on: (**Any two**) 2×5
   a) Cloud computing
   b) Distributed file system
   c) Naïve snapshot algorithm