

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Distributed System

Semester: Spring

Year : 2018
Full Marks: 100
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) Explain the advantages of distributed system over independent PCs. 7
Explain different issues while designing a distributed system.
- b) What is a socket? A server creates a port which it uses to receive requests from clients. Discuss the design issues concerning the relationship between the name of this port and the names used by clients. 8
2. a) Why middleware is important in distributed system? Explain Remote Method Invocation (RMI) in distributed system. 7
- b) What is name service? Explain the working mechanisms of DNS. 8
3. a) What is logical clock? Differentiate Lamport's clock and vector clock. 7
- b) Why do we need to be aware of global state in distributed system? Describe snapshot algorithm that can determine global state of distributed system. 8
4. a) What is election in distributed system? Can multiple election appear in Bully algorithm? Explain. 7
- b) What is race condition and semaphore? Compare and contrast Lamport's and Ricart Agrawala distributed mutual exclusion algorithm. 8
5. a) What is fault tolerant service? Describe passive replication technique. 7
- b) What are the different types of failure models? Explain agreement in faulty system using Lamport's algorithm. 8
6. a) What is shadow paging? How distributed deadlock is detected using Chandy-Misra-Haas Edge Chasing algorithm? 8
- b) What are the problems of concurrency in transaction? List and describe with examples. 7

7. Write short notes on: (Any two)

- a) Cloud computing
- b) Distributed object model
- c) Triple Modular Redundancy

2×5