

Code No: 137CA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, December - 2019

DISTRIBUTED SYSTEMS

(Computer Science and Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A

(25 Marks)

- 1.a) How Internet differs from Intranet? [2]
- b) List the characteristics of a Distributed System. [3]
- c) What is meant by clock skew and clock drift? [2]
- d) Write a short note on the Berkeley's algorithm for synchronizing clocks. [3]
- e) Compare TCP with UDP communication protocols. [2]
- f) What are the design issues of RMI? [3]
- g) Define Location transparency and Performance transparency. [2]
- h) What is meant by the Domain Name System? [3]
- i) Define ACID properties of transaction. [2]
- j) Give an example for the inconsistent retrievals problem. [3]

PART - B

(50 Marks)

2. Discuss the major challenges to be considered in the design of a Distributed system. [10]

OR

3. Describe the Client-server and Peer-to-Peer architectural models with neat diagrams and mention their characteristics. [10]

- 4.a) Explain briefly about vector clocks with an illustrative example. [8]
- b) Device snapshot algorithm of Chandy and Lamport. [5+5]

OR

5. How to implement mutual exclusion between processes in a distributed system using Maekawa's algorithm? Explain. [10]

6. Describe the role of various objects, modules and components involved in the implementation of RMI with a neat diagram. [10]

OR

7. Explain TCP stream communication protocol with a sample code using Java APIs. [10]

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8. Describe the Sun Network file system architecture and also mention the design goals of NFS. [10]

OR

9.a) Mention the advantages and disadvantages of X.500 directory service.

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b) Discuss the concept of Directory services.

10. Summarize the drawbacks of locking mechanism and explain optimistic concurrency control mechanism. [10]

OR

11. Explain in detail about Two-phase commit protocol with its merits and demerits. [10]

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