

Total No. of Questions : 12]

SEAT No. :

P849

[Total No. of Pages : 3

[4458] - 801

B.E. (Information Technology) (Semester - II)

DISTRIBUTED SYSTEMS

(2008 Course)

Time :3 Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) Answers to the two sections should be written in separate books.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) What is distributed system? Explain three fundamental models that help to reveal key problems for the designers of distributed systems. [8]
- b) Compare distributed operating system, network operating system and middleware systems. [8]

OR

- Q2)** a) Write a short note on scalability and transparency of a distributed system. [8]
- b) Describe Internet as a Distributed system. Explain working of World Wide Web in detail. [8]

- Q3)** a) Explain steps involved in doing remote computation through RPC with suitable diagram. [8]
- b) What is persistence and synchronicity in communication? Explain different forms of message oriented communication. [10]

OR

- Q4)** a) What is group communication? What is its use in distributed computing? [6]

P.T.O.

- b) Give a short note on each of the following : [12]
- i) Asynchronous RPC
 - ii) Doors
 - iii) Interface Definition language

- Q5)** a) What is global state of a distributed system? Give suitable application where global state of the system is used. [8]
- b) Discuss distributed approach for mutual exclusion. Discuss Ricart and Agrawala algorithm that supports mutual exclusion. [8]

OR

- Q6)** a) What are physical clocks and logical clocks? Explain Berkeley Algorithm for clock synchronization. [8]
- b) Explain in detail vector timestamp method for logical clock synchronization. [8]

SECTION - II

- Q7)** a) Discuss different Distributed File System requirements. [8]
- b) Explain the architecture of NFS in detail. [8]

OR

- Q8)** a) Discuss automounting and naming of NFS. [8]
- b) Write a detailed note on DNS. [8]

- Q9)** a) What is consistency model? Explain following data centric consistency models of DSM [15]
- i) Causal consistency
 - ii) Sequential consistency
 - iii) Pipelined RAM consistency
 - iv) Weak consistency
- b) Describe distributed shared memory architecture. [3]

OR

- Q10)** a) Explain different approaches for replication management. [8]
b) Explain following design issues of DSM : [10]
i) Granularity
ii) Update options
iii) Thrashing
iv) Synchronization

- Q11)** a) Discuss several classification of failures. [10]
b) What are process groups? Discuss Flat groups versus Hierarchical groups. [6]

OR

- Q12)** a) Give the solution for scalability in reliable multicasting. [8]
b) Explain three-phase commit protocol in detail. [8]

