

Total No. of Questions : 12]

SEAT No. :

**P801**

[Total No. of Pages : 3

**[4659]-214**

**B.E. (I.T.) (Semester - II)**  
**DISTRIBUTED SYSTEMS**  
**(2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates :*

- 1) *Answers to the two sections should be written in separate answer books.*
- 2) *Answer any three questions from each section.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*
- 5) *Use of calculator is allowed.*
- 6) *Assume suitable data, if necessary.*

**SECTION - I**

- Q1)** a) Describe the working of Distributed system based upon middleware software system. Also clearly describe the role played by middleware in Distributed system. [9]
- b) Describe various architectural models and their variations with suitable examples. [9]

OR

- Q2)** a) Compare Distributed System versus Centralized Systems. [9]
- b) What are types of failures? Classify the following failures based on types of failures with justification. [9]
- i) Sudden shutdown of a system
  - ii) Network crash
  - iii) System reset while working
  - iv) Unnoticed event handler closing a word document
- Q3)** a) Define and explain following along with one application of it. [8]
- i) Synchronous Distributed Systems
  - ii) Asynchronous Distributed Systems
- b) Discuss the concept of request/reply message handling using HTTP protocol and TCP protocol. Compare the working, limitations and advantages of both protocols. [8]

**P.T.O.**

OR

- Q4)** a) What is primary motivation behind the development of a lightweight RPC System? Describe the four techniques used in a LRPC system that makes more efficient than a conventional RPC system. [8]
- b) Write a short note on [8]
- i) Sun RPC
- ii) CORBA
- Q5)** a) Compare Centralized, Decentralized, Distributed and Token ring mutual exclusion algorithms. [8]
- b) Explain network time protocol to distribute time information over Internet. [8]

OR

- Q6)** a) Explain how NTP is useful to distributed time over the Internet? Also state the features of NTP. [8]
- b) Discuss happens-before relationship in a set of events occurred in various processes. [8]

**SECTION - II**

- Q7)** a) How communication does takes place in CODA File System? Describe the implementation and resolution of CODA File identifier. [9]
- b) Explain file service architecture in detail. [9]

OR

- Q8)** a) What is Distributed File System? Explain different types of services provided by Distributed File System. [9]
- b) What are different file sharing semantics used in distributed file system? [9]
- Q9)** a) What is Distributed Shared memory? Explain its advantages. [8]
- b) What are the two options available for propagating updates made by one process to other processes? Also explain granularity of sharing. [8]

OR

- Q10)** a) Explain following consistency models in short. [8]
- i) Release consistency model
  - ii) Casual consistency model
  - iii) Processor consistency model
  - iv) Pipelined consistency model
- b) What is client centric consistency model? Explain in detail. [8]

- Q11)** a) Explain following protocols: [8]
- i) One-Phase Commit
  - ii) Two-Phase Commit
  - iii) Three-Phase commit
- b) What is the use of stable storage? How stable storage technique is used in recovery? [8]

OR

- Q12)** a) Explain following orderings: [8]
- i) FIFO
  - ii) Casual
  - iii) Total
  - iv) No Ordering
- b) What is a recovery line? Draw and explain domino effect n detail. [8]

