P1104

[3864] - 412

B.E. (Computer Engineering)

DISTRIBUTED SYSTEMS

(2003 Course) (410451)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to candidates:

1) ***Answer 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) ***Use of logarithmic tables, slide rule, mollier charts, electronic pocket calculator and steam table is allowed.***
5) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) What is the difference between distributed operating system and network operating system? **[6]**

b) What is difference between vertical distribution and a horizontal distribution? **[6]**

c) Explain degree of transparency with suitable example. **[6]**

OR

Q2) a) Explain different types of system models in a Distributed System. **[6]**

b) Enlist and explain different middleware models. **[6]**

c) Explain different transparencies in distributed system with suitable examples. **[6]**

Q3) a) Explain different forms of communication in message oriented communication. **[8]**

b) What are the issues concerned with parameter passing in RPC system? **[8]**

OR

Q4) a) Explain token bucket algorithm with respect to quality of service requirements. **[8]**

b) Explain general architecture for message queuing system for persistent communication. **[8]**

Q5) a) Compare Coda and xFS distributed file system. **[8]**

b) What is X.500? Describe the organization of X.500 name space. **[8]**

OR

Q6) a) Explain principle of log based striping in xFS with neat diagram. **[6]**

b) Explain how DNS can be used to implement a home based approach to locating mobile users. **[6]**

c) Explain difference between iterative and recursive name resolution. **[4]**

SECTION - II

Q7) a) To achieve totally-ordered multicasting with Lamport timestamps, is it necessary that each message is acknowledged? Explain. **[6]**

b) Explain Berkeley algorithm for clock synchronization with suitable example. **[6]**

c) Explain how NTP (network time protocol) is useful to distribute time over the Internet, also state the features of NTP. **[6]**

OR

Q8) a) Explain the difference between nested transactions and distributed transactions. **[8]**

b) Explain Bully and Ring election algorithms. Discuss time complexity for both algorithms in best case and worst case. **[10]**

Q9) a) Enlist and discuss different failure models. **[8]**

b) Explain different techniques to achieve reliable group communication. **[8]**

OR

*Q10)*a) Explain n-army problem with possible solution. **[8]**

b) What are different classes of failures that can occur in RPC system? Explain with suitable example. **[8]**

*Q11)*a) Explain the elements of GRID computing systems. **[8]**

b) How does Portable Object Adapter use a servant to build image of CORBA object? **[8]**

OR

*Q12)*a) What is virtual organization concept in GRID? **[8]**

b) Explain the importance of CORBA IDL, CORBA RMI service and CORBA Naming Service. **[8]**