Total No. of Questions : 10]

SEAT No. :

P3187

[Total No. of Pages : 3

[5354]-704

B.E. (Information Technology)

DISTRIBUTED SYSTEM

(2012 Pattern) (Semester - II)

Time : 2½ Hours] *[Max. Marks :70*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6,Q7 or Q8,Q9 or Q10.***
2) ***Figures to right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable data, if necessary.***

Q1) a) Give five types of hardware resource and five types of data or software resource that can usefully be shared. Give examples of their sharing as it occurs in practice in distributed systems. **[6]**

b) Explain the concept of Web Service? Illustrate use of communication patterns available in web services with the help of "Travel Agent Service" application. **[4]**

OR

Q.2 a) Describe precisely what is meant by a scalable system. Scalability can be achieved by applying different techniques. What are these techniques? **[6]**

b) Explain the concept of Web Service. Illustrate with suitable diagram, how "Travel Agent Service" application combines other web services. **[4]**

Q.3 a) Differentiate between: **[6]**

i) RMI and RPC
ii) RMI and CORBA
iii) RMI and Socket

b) Use CORBA IDL to specify a bank account. An account should have the information about account name, account number, and balance. The methods for this bank account should include open, deposit, withdraw, and balance inquiry. Your IDL should be able to run through CORBA IDL compiler. **[4]**

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OR

Q4) a) What is stub? How are stubs generated? Explain how the use of stubs help in making an RPC mechanism transparent. **[6]**

b) Define the interface to the Election service in CORBA IDL and Java RMI. Note that CORBA IDL provides the type long for 32 bit integers. Compare the methods in the two languages for specifying input and output arguments. **[4]**

Q5) a) Define Global State. Explain the 'Snapshot' algorithm for determining global states of distributed systems. **[8]**

b) Explain following points related to fault tolerance issues in Distributed Systems: **[8]**

i) Availability

ii) Reliability

iii) Failure Models

iv) Tripple modular redundancy.

OR

Q6) a) Explain the concept of logical clock and their importance in distributed system. Write Lamport's timestamp algorithm in Pseudo Code and explain it with suitable example. **[8]**

b) Explain Recart and Agarwala's algorithm for mutual exclusion in detail. What are drawbacks of this algorithm? **[8]**

Q7) a) Discuss any four distributed file system requirements? Explain in brief, different types of services provided by distributed file system. **[8]**

b) What is Quality of Service Management? Explain two main subtasks of QOS Manager with the help of a flowchart. **[8]**

OR

Q8) a) Write a note on: **[8]**

i) Andrew File System

ii) Sun Network File System

b) What is Quality of Service Management? Explain typical infrastructure components for a simple multimedia conferencing application. **[8]**

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Q9) a) What is a digital signature? What are its usage in the security of a distributed system? Give a method for generating and verifying a digital signature with public keys. **[10]**

b) State and explain various security mechanisms for achieving security in distributed systems. **[8]**

OR

Q10)a) Describe Kerberos authentication system architecture with neat diagram. Explain why Kerberos is not complete security solution. **[10]**

b) Explain the Secure Mobile code in brief with reference to JAVA sandbox. **[8]**

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