Total No. of Questions :12] [Total No. of Pages : 2

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[3864] - 424

B.E. (Information Technology)

DISTRIBUTED SYSTEMS

(2003 Course)

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

Instructions to the candidates:

1) ***Answer question 1 or 2, 3 or 4, and 5 or 6 from section - 1 and question 7 or 8, 9 or 10, and 11 or 12 from section - II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) List and explain advantages and disadvantages of distributed systems over centralized system. **[8]**

b) Explain with neat diagram architectural Models of distributed systems. **[8]**

OR

Q2) a) What are the various challenges for designing distributed systems? **[8]**

b) What are the services offered by middleware in a distributed system? **[8]**

Q3) a) Describe working of Remote Procedure Call in client server communication with suitable diagram. **[8]**

b) What is group communication? Explain different types of group communication. **[8]**

OR

Q4) a) What is RMI? Explain types of RMI invocation semantics. **[8]**

b) What is Call Back RPC? How does a server handle Call Back to the client? **[8]**

Q5) a) Highlights desirable features of a good distributed file system. List the functions of distributed file system. **[10]**

b) Explain different types of file sharing semantics. **[8]**

OR

P.T.O.

Q6) a) Draw and explain NFS architecture and give detail functions of layers. [10]

b) Write a short note on CODA file system. [8]

SECTION - II

Q7) a) Explain the following: [8]

i) Physical Clock.

ii) Network Time Protocol.

iii) Drift Rate.

iv) Happened before relation.

b) What is a distributed Deadlock? What are the necessary conditions for deadlock to occur in distributed environment? [8]

OR

Q8) a) Explain the reasons for drift in computer clocks. [4]

b) Enumerate the various issues in clock synchronization. [6]

c) What is Election Algorithm? Explain in brief about Bully algorithm? [6]

Q9) a) What is Fault tolerance? Explain different types of failures. [8]

b) What is check pointing? Explain independent check pointing and coordinated check pointing. [8]

OR

*Q10)*a) What is message ordering? Explain FIFO order and causally ordered multicast. [8]

b) What is recovery? What is backward and forward recovery? [8]

*Q11)*a) Draw and explain CORBA architecture. [10]

b) Explain : OBV, CCM, GIOP, DDS. [8]

OR

*Q12)*a) Explain cluster computing system with working, types of clusters and how it can be used as an alternative to traditional super computers. [10]

b) Write short note on Grid Computing. [8]