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Question Paper Code : 52871

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Sixth Semester

Computer Science and Engineering

CS 6601 — DISTRIBUTED SYSTEMS

(Common to Information Technology)

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What is distributed system?

2.   What are the three main standard technological components of Web?

3.   Compare RMI with RPC.

4.   What is meant by marshalling and unmarshalling?

5.   What is the need for peer-peer middleware system?

6.   What is LDAP?

7.   Why is computer clock synchronization necessary?

8.   What is phantom deadlock?

9.   Differentiate between load balancing and load sharing approach for scheduling processes.

10.   What are the benefits of process migration in distributed systems?

PART B — (5 × 13 = 65 marks)

11.   (a)   Describe the trends in the distributed systems in detail.   (13)

Or

(b)   Discuss the major issues in distributed systems.   (13)

12.   (a)   What is overlay network? Explain types of overlay in detail.   (13)

Or

(b)   (i)   What is group communication? Give any two key application areas of group communication is distributed systems.   (5)

(ii) Explain the role of proxy and skeleton in remote method invocation.   (8)

13.   (a)   (i)   Differentiate IP and overlay routing for peer-to-peer applications.   (7)

(ii) Explain file service architecture in detail.   (6)

Or

(b)   (i)   How does AFS ensure that the cached copies of files are up-to-date when files may be updated by several clients?   (4)

(ii) Explain the Pastry's routing algorithm.   (9)

14.   (a)   Describe Maekawa's algorithm for mutual exclusion.   (13)

Or

(b)   Give the distributed algorithm for deadlock detection and illustrate with an example.   (13)

15.   (a)   Discuss about the issues in design load balancing algorithms.   (13)

Or

(b)   Describe the issues in designing thread packages.   (13)

PART C — (1 × 15 = 15 marks)

16.   (a)   In the ring-base election algorithm. two or more processes may almost simultaneously discover that the coordinator has crashed and then each one may circulate an election message over the ring. Although this does not cause any problem in the election, it results in waste of network bandwidth. Modify the algorithm so that only one election message circulates completely round the ring and others are detected and killed as soon as possible.

Or

(b)   In client server model that is implemented by using a simple RPC mechanism, after making an RPC request, a client keeps waiting until a reply is received from the server for its request. It would be more efficient to allow the client to perform other jobs while the server is processing its request. Develop a mechanism that may be used in this case to allow a client to perform other jobs while the server is processing its requests.