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Question Paper Code : 70392

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Sixth Semester

Computer Science and Engineering

CS 6601 – DISTRIBUTED SYSTEMS

(Common to Information Technology)

(Regulations 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write down the principles of distributed systems.

2. State the objectives of resource sharing model.

3. Compare the Communicating entities: Object, components and web services.

4. "Tiered architectures are complementary to layering" — Comment.

5. Describe the characteristics of Peer to Peer systems.

6. Discuss on LDAP.

7. Define nested- transactions.

8. What is clock's drift rate?

9. What are the sub activities involved in process migration?

10. What is the basic idea behind task assignment approach?

PART B — (5 × 13 = 65 marks)

11. (a) (i)   What is the need for distributed system? List the distributed systems challenges. (5)

        (ii) Identify the five types of hardware resource and five types of data or software resource that can be shared efficiently. Give examples. (8)

Or

(b) (i) Elaborate the design issues to be considered for spontaneous networking. (5)

(ii) A user arrives at a railway station for the first time. Carrying a PDA that is capable of wireless networking. Suggest how the user could be provided with information about the local services and amenities at that station without entering the station's name or attributes. What are the technical challenges to be addressed? (8)

12. (a) Illustrate TCP and UDP communication with suitable example programs. (13)

Or

(b) Write down the steps in javaRMI and explain it with suitable programs. (13)

13. (a) (i) Give the functional and non-functional requirements of peer-to peer middleware. (7)

(ii) Specify the benefits of overlays routing over traditional multitoning and intelligent routing. (6)

Or

(b) (i) Explain the function of File Service Architecture. (7)

(ii) Briefly describe about name space implementation. (6)

14. (a) (i) Explain distributed mutual exclusion with suitable algorithm. (7)

(ii) Elaborate on any three election algorithms. Use diagrams wherever necessary. (6)

Or

(b) (i) Describe atomic commit protocols in detail. (7)

(ii) Explain replication in detail. (6)

15. (a) (i) Explain how process migration is implemented in heterogeneous system. (7)

(ii) Discuss the issues related to thread programming, thread lifetime and thread synchronization. (6)

Or

(b) (i) Describe in detail about the Load balancing approach. (6)

(ii) Give the techniques and methodologies for scheduling process of a distributed system. (7)

PART C — (1 × 15 = 15 marks)

16. (a) Explain the Pastry's routing algorithm. Illustrate with an example.   (15)

Or

(b) With a simple case study, explain the concept of distributed deadlocks.

(15)

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