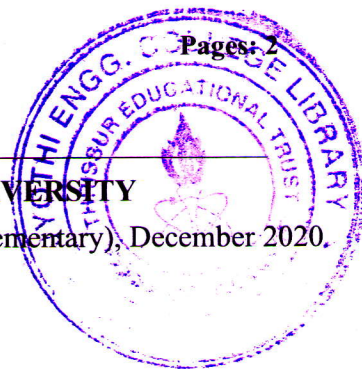Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination (Regular and Supplementary), December 2020.

Course Code: CS407

Course Name: DISTRIBUTED COMPUTING

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries 4 marks.   Marks

1. List any four challenges in the design of a distributed system. (4)

2. Discuss the techniques used in distributed systems for failure handling. (4)

3. Distinguish between the two variants of the interaction model in distributed systems. (4)

4. What is file group? How will you generate a unique identifier for a file group? (4)

5. Write notes on the three RPC call semantics. (4)

6. List and explain the characteristics of multicasting. (4)

7. What is the purpose of using Locks in transactions? Describe two-phase locking. (4)

8. Explain the basic time stamp ordering rule. (4)

9. What are the criteria for evaluating the performance of a mutual exclusion algorithm? (4)

10. Explain the Ricart and Agarwal algorithm. (4)

PART B
Answer any two full questions, each carries 9 marks.

11. a) Compare workstation model with workstation-server model. (4)

     b) Illustrate the processor-pool model with a neat diagram. Discuss the features. (5)

12. a) Describe architectural patterns used in distributed systems. (5)

     b) What are the different placement strategies followed in a distributed system? (4)

13. a) Explain interaction model of distributed systems. (5)

     b) Explain how multimedia services are supported in distributed systems. (4)

PART C
Answer any two full questions, each carries 9 marks.

14 a) With a neat diagram, explain the tasks in group membership management. (5)

b) Explain the request –reply protocol used in client server communication. Give an example. (4)

15 a) Summarize any five Distributed File System requirements. (5)

b) Explain the role of virtual file system module (VFS) in Sun NFS. (4)

16 a) What are the different failures mentioned in the failure model for UDP datagrams? (4)

b) With appropriate diagram explain the distribution of processes in the Andrew File System. (5)

PART D
Answer any two full questions, each carries 12 marks.

17 a) Explain the lost update and inconsistent retrievals problems in concurrent transactions with the help of examples. (6)

b) What are the disadvantages of Lock based concurrency control? Name and explain any alternative approach for achieving concurrency (6)

18 a) Describe the working of bully algorithm with an example. (6)

b) Compare the central server algorithm and ring based algorithm. Which is better and why? (6)

19 a) What are nested transactions? Summarize the rules for committing of nested transactions (6)

b) In a ring topology 7 processes are connected with different ID's as shown: (6)
P20->P5->P10->P18->P3->P4->P9 If process P10 initiates election after how many message passes will the coordinator be elected and known to all the processes. What modification will take place to the election message as it passes through all the processes?

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