Total No. of Questions : 8]

SEAT No. :

P1009

[Total No. of Pages : 2

[5870]-1131

T.E. (Computer Engineering)

DISTRIBUTED SYSTEMS

(2019 Pattern) (Semester - I) (Elective - I) (310245C)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates :

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 and Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Assume suitable data wherever necessary.***

Q1) a) Why clock synchronization is important in distributed system with suitable example? Describe two clock synchronization algorithms. **[9]**

b) What is mutual exclusion? Compare and contrast mutual exclusion algorithms. **[9]**

OR

Q2) a) Describe the purpose of election algorithm in distributed system. Describe the bully election algorithm. **[9]**

b) Describe gossip-based contribution in detail. **[9]**

Q3) a) Describe File service architecture in distributed system. **[9]**

b) Explain in detail suns network file system. **[8]**

OR

Q4) a) Why naming is important in distributed system? Explain flat naming and structured naming. **[9]**

b) Describe Andrew file system in detail. **[8]**

P.T.O.

Q5) a) Explain the reasons of replication? Describe replica management in distributed system. **[9]**

b) Describe data-centric consistency model in detail. **[9]**

OR

Q6) a) Describe replication as scaling technique in distributed system. Describe how replicated objects can be managed? **[9]**

b) Describe client-centric consistency model in detail. **[9]**

Q7) a) What is mean by process resilience? Explain process resilience techniques in distributed system. **[9]**

b) Describe RPC semantics in the presence of failures. **[8]**

OR

Q8) a) Describe various failure models in distributed system. **[9]**

b) Describe how reliable group communication achieved in distributed system. **[8]**

Total No. of Questions : 8]

SEAT No. :

PA-1447

[Total No. of Pages : 2

[5926]-63
T.E. (Computer Engineering)
DISTRIBUTED SYSTEMS
(2019 Pattern) (Semester - I) (Elective - I) (310245 C)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagram must be drawn wherever necessary.***
3) ***Assume suitable data, if necessary.***

Q1) a) Describe the importance of clock synchronization algorithm. Explain lamport's logical clock for clock synchronization. **[9]**

b) What is mutual exclusion? Explain centralized algorithm in detail with example. **[9]**

OR

Q2) a) Explain clock synchronization algorithms in detail. **[9]**

b) Describe Gossip-based contribution in detail. **[9]**

Q3) a) Describe the following in brief **[9]**

i) Flat naming

ii) Structured naming

iii) Attributed based naming

b) Explain file service architecture in distributed system. **[8]**

OR

Q4) a) Describe suns network file system in detail. **[9]**

b) Why naming is significance in distributed system? Describe any two types of naming. **[8]**

P.T.O.

Q5) a) Describe consistency protocols in brief. **[9]**

b) What is replica management? Explain techniques of replica management. **[9]**

OR

Q6) a) Describe Cache coherence protocols in detail. **[9]**

b) Describe Data - centric consistency models in detail. **[9]**

Q7) a) What is process resilience? Describe how process resilience can be achieved. **[9]**

b) Explain how reliable client server communication can be achieved. **[8]**

OR

Q8) a) Describe recovery techniques in distributed system. **[9]**

b) Explain how consensus achieved in faulty systems. **[8]**

Total No. of Questions : 8]

SEAT No. :

P274

[Total No. of Pages : 2

[6003] - 352

T.E. (Computer Engineering)

DISTRIBUTED SYSTEMS

(2019 Pattern) (Semester - I) (Elective - I) (310245 C)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, and Q7 or Q8.***
2) ***Neat diagrams must be drawn whenever necessary.***
3) ***Assume suitable data, if necessary.***

Q1) a) What is clock synchronization? Explain in brief clock synchronization algorithms. **[6]**

b) What is mutual exclusion? Compare centralized and decentralized mutual exclusion algorithms. **[6]**

c) Explain how logical positioning of nodes is done in Gps location system. **[6]**

OR

Q2) a) Explain in detail lamport's logical clock. **[6]**

b) Explain with suitable example how butly election algorithm works. **[6]**

c) Explain gossip-based overlay construction of gossip-based contribution. **[6]**

Q3) a) Explain the following naming system of file system. **[6]**

i) flat naming.

ii) structured naming.

b) Explain file service architecture of distributed file systems. **[6]**

c) Explain with suitable example, Andrew file system. **[5]**

OR

Q4) a) What is attributed based naming? Explain. **[6]**

b) What are identifiers? Explain. **[6]**

c) Explain with suitable example, Suns network file system. **[5]**

P.T.O.

Q5) a) Differentiate between data - centric and client - centric consistency models. **[6]**

b) Describe architecture of replicated data management. **[6]**

c) Explain following terms w.r.t. replica management. **[6]**

i) Content replication.

ii) Content distribution.

OR

Q6) a) What is replication? Enlist reasons for replication. **[6]**

b) Explain eventual consistency model. **[6]**

c) Explain how replicated objects are managed by replica management. **[6]**

Q7) a) What is fault to lerance? Explain in short failure models. **[6]**

b) Explain failure masking in distributed system. **[6]**

c) Describe check pointing for recovery. **[5]**

OR

Q8) a) Describe RPC semantics in presence of failures. **[6]**

b) Explain failure models in distributed system. **[6]**

c) Describe atomic multicast for reliable group communication. **[5]**

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Total No. of Questions : 8]

SEAT No. :

P-7543

[Total No. of Pages : 2

[6180]-51

T.E. (Computer Engineering)

DISTRIBUTED SYSTEMS

(2019 Pattern) (Semester - I) (Elective - I) (310245(C))

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn whenever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data whenever necessary.***

Q1) a) Explain in short, physical and logical clocks synchronization. **[6]**

b) What is mutual exclusion? List it's requirements. **[6]**

c) What is the goal of an election algorithm? Explain it in detail. **[6]**

OR

Q2) a) Explain how mutual exclusion is handled in distributed system? **[6]**

b) Explain Aggregation as a Gossip-Based Contribution. **[6]**

c) Explain in short, following Election Algorithms: **[6]**

i) Bully Algorithm

ii) Ring Algorithm

Q3) a) Explain the need of Distributed File System. List any three distributed file systems. **[6]**

b) Explain why Naming is essential in DFS? Describe Flat Naming in DFS. **[6]**

c) Explain in brief, File service architecture of Distributed File System. **[5]**

OR

P.T.O.

Q4) a) Explain distributed file system requirements. **[6]**

b) Explain the following Naming in DFS. **[6]**

i) Structured naming

ii) Attributed Based Naming

c) Explain in short : Andrew file system of DFS. **[5]**

Q5) a) What is Replication? Explain replication as a scaling technique. **[6]**

b) Explain the methods of Content Replication and Content Distribution. **[6]**

c) Explain with suitable example, Cache Coherence Protocols. **[6]**

OR

Q6) a) Explain how Data-Centric consistency models are different than the from Client-Centric Consistency models? **[6]**

b) Explain the following consistency protocols. **[6]**

i) Continuous Consistency

ii) Sequential Consistency

c) Explain the terms : Monotonic Reads and Monotonic Writes of Consistency models. **[6]**

Q7) a) What is Failure Masking? Explain Failure Masking by Redundancy. **[6]**

b) Explain Reliable Client Server Communication in terms of Point-to-Point Communication. **[6]**

c) What is RPC? Explain RPC semantics in the presence of failure. **[5]**

OR

Q8) a) What is Fault Tolerance? Explain the failure models of fault tolerance. **[6]**

b) What do you mean by Failure Recovery? Explain the various failure recovery Techniques. **[6]**

c) Define the terms of group communication: Atomic multicast and Distributed Commit. **[5]**

Total No. of Questions : 8]

SEAT No. :

P-7543

[Total No. of Pages : 2

[6180]-51

T.E. (Computer Engineering)

DISTRIBUTED SYSTEMS

(2019 Pattern) (Semester - I) (Elective - I) (310245(C))

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c) Explain in brief, File service architecture of Distributed File System. **[5]**

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