Total No. of Questions : 8]

SEAT No. :

P-7543

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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

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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]**

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