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MCA
(SEM IV) THEORY EXAMINATION 2017-18
DISTRIBUTED SYSTEM

Time: 3 Hours**Total Marks: 100****Note:** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

- a. Define fault tolerance
- b. State the advantages of overlays network.
- c. What are the rules to abort the nested transaction?
- d. What are the sub activities involved in process migration?
- e. What is the basic idea behind task assignment approach?
- f. Define file accessing models.
- g. What is clock's drift rate?
- h. Write down the goals to achieve an optimal assignment.
- i. Write down the features of scheduling algorithms.
- j. Difference between ROI and RPC

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

- a. Explain in detail the concept of parallelism transparency.
- b. Define hardware and software resources that can be shared by distributed system with examples in detail.
- c. Explain Bully algorithm.
- d. What are vector clocks? What are the advantages of vector clock.
- e. Construct a solution to reliable, total ordered multicast in synchronous system.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

- (a) What are Agreement protocols? What are Agreement and validity objectives of Byzantine Agreement Problems.
- (b) What is routing? What is destination based routing?

4. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Discuss deadlock free packet switching in detail.
- (b) What is election algorithm? Discuss it

5. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Explain how process migration is implemented in heterogeneous system.
- (b) Define fault and failure. What are different approaches to fault-tolerance? Explain.

6. Attempt any *one* part of the following: 10 x 1 = 10

- (a) What is replication? Describe problems and solutions associated with this issue in distributed systems.
- (b) What are the atomic commit protocols? Describe operation of two-phase atomic commit protocol.

7. Attempt any *one* part of the following: 10 x 1 = 10

- (a) What are the various group communication protocols? Explain any one.
- (b) Discuss in detail Data centric and client centric consistency models.