Printed Pages: 02 **Sub Code: NMCAE15**

Paper Id: 214419 **Roll No.** | | | | | | | | | | |

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.