**Printed Pages: 02** **Sub Code: ECS701**

**Paper ID:** | 1 | 0 | 2 | 9 | **Roll No.** | | | | | | | | | | |

**B.TECH**
**(SEM. VII) THEORY EXAMINATION 2017-18**
**DISTRIBUTED SYSTEM**

***Time: 3Hours*** ***Max. Marks: 100***

**Note:** Attempt all Sections. Assume missing data, if any.

## SECTION A

**1. Attempt *all* questions in brief. 10x2 = 20**

a. Why would you design a system as a distributed system? List some advantages of distributed systems.
b. List three properties of distributed systems.
c. What is the advantage if your server side processing uses threads instead of a single process?
d. What is a proxy? Give an example of where a proxy can be used.
e. What are the differences between a local call and a remote call?
f. What is the purpose of a firewall?
g. What were the reasons that middleware moved from distributed objects to distributed components?
h. Name two mechanisms that can be used to ensure performance in distributed systems.
i. What are the differences between a URL, URI and URN?
j. What is atomic commit protocol?

## SECTION B

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

a. What is distributed transparency? Explain the different types of distributed transparencies.
b. Explain shared memory architecture and distributed memory architecture.
c. Describe Byzantine agreement problem, and explain its solution. Show that Byzantine agreement cannot always be reached among four processors if two processors are faulty.
d. Discuss the major issue in designing a distributed system.
e. What is Mutual Exclusion? Describe the requirements of mutual exclusion in distributed system. Is mutual exclusion problem more complex in distributed system than single computer system? Justify your answer.



## SECTION C

**3. Attempt any *two* parts of the following: 5 x 2 = 10**

a. Draw a schematic diagram of the distributed transaction management model. Explain each component in brief.
**b.** Describe three phase commit protocol. How three phase commit protocol is different than two phase commit protocol?
c. Write and explain various issues that must be addressed in design and implementation of distributed file system.

**4. Attempt any *two* parts of the following: 5 x 2 = 10**

(a) What is Cache? Discuss read operation with cache and write operation with cache.
(b) Explain naming in distributed system. What is flat naming and structured naming?
(c) Classify the Deadlock detection algorithms. Describe the Path-Pushing deadlock detection algorithm.

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

(a) What are stub and skeleton and why are they needed in remote procedure calls?
(b) What is the purpose of an Interface Definition Language? Why does CORBA not just use the Java interface construct?

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

(a) How the distributed computing system is better than parallel processing system? Explain.
(b) What is termination detection in distributed system? Explain any algorithm for termination detection.

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

(a) How does a server know that one of his remote objects provided by him is no longer used by clients and can be collected? How does Java RMI handle this problem and what alternatives are there?

(b) De-activation is a technology used to preserve server resources where a server which provides remote objects to clients can de-activate those remote objects. Clients should not know about this. What must the server do to avoid surprises for the clients?