

M. TECH. -I (COMPUTER ENGINEERING) (CBCS – 2015 COURSE)
: WINTER - 2017
SUBJECT : DISTRIBUTED COMPUTING

Day : **Monday**
Date : **22/01/2018**

W-2017-2779

Time : **11.00 AM TO 02.00 PM**
Max. Marks : **60.**

N.B.;

- 1) All questions are **COMPULSORY**.
- 2) Both the section should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1** Discuss the relative advantages and disadvantages of the various commonly used models for configuring distributed computing system. Which model do you think is going to become the most popular model in future? Give reasons for your answer. **(10)**

OR

In what respect are distributed computing systems better than parallel processing systems? Give examples of three applications for which distributed computing systems will be more suitable than parallel processing systems. **(10)**

- Q.2** What are the main issues related to the correctness of the IPC-protocols of a message passing system? Describe a suitable mechanism for handling each of these issues. **(10)**

OR

Describe blocking and non-blocking types of IPC, which is easier to implement and why? Discuss their relative advantages and disadvantages. **(10)**

- Q.3** What was the primary motivation behind the development of the RPC facility? How does RPC facility make the job of distributed applications programmer simpler? **(10)**

OR

What is stub? How are stubs generated? Explain how the use of stubs helps in making RPC mechanism transparent. **(10)**

SECTION-II

- Q.4** Differentiate between internal synchronization and external synchronization of clocks, in a distributed system. Externally synchronized clocks are also internally synchronized but the converse is not true. Explain why? **(10)**

OR

What is a “deadlock”? What are the four necessary conditions for a deadlock to occur? Give suitable examples to prove that if any one of the four conditions is absent, no deadlock is possible. **(10)**

P.T.O.

- Q.5** What are the main differences between the load-balancing and load-sharing approaches for process scheduling in distributed systems? Which of the various policies to be used in the implementation of the two approaches are different and which of them are same? **(10)**

OR

What are some of the main issues involved in freezing a migrant process on its source node and restarting it on its destination node? Give a method for handling each of these issues. **(10)**

- Q.6** What are the main causes of thrashing in a DSM system? What are the commonly used methods to solve the thrashing problem in a DSM system? Also explain various approaches for designing a DSM system? **(10)**

OR

In the design of a distributed file system, high availability and high scalability are mutually related properties. Also high performance and high reliability are conflicting properties. Discuss.

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