

M. Tech. –I (Computer Engineering) (CBCS – 2015 Course) :

WINTER - 2018

SUBJECT : DISTRIBUTED COMPUTING

Day : Monday

W-2018-3111

Time 11.00 AM TO 02.00 PM

Date : 10/12/2018

Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in the **SEPARATE** answer books.
- 4) Draw neat and labeled diagram **WHEREVER** necessary.
- 5) Assume suitable data, if necessary.

SECTION - I

- Q. 1** Discuss the relative advantages and disadvantages of the various commonly used models for configuring distributed computing systems. Which model do you think is suitable (10)

OR

What is distributed system? What are the issues in designing distributed system? Explain.

- Q. 2** Describe blocking and non-blocking types of IPC. Which is easier to implement and why? Discuss their relative advantages and disadvantages. (10)

OR

What are the main reliability issues in designing a message passing system? Describe a suitable mechanism for handling each of these issues.

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

OR

What is a “Stub”? How stubs are generated? Explain how the use of stubs helps in making RPC mechanism transparent.

SECTION - II

- Q. 4** How do clock synchronization issues differ in centralized and distributed computing systems? Explain in detail. (10)

OR

What is a deadlock? What are the four necessary conditions for a deadlock to occur? Give suitable example to prove that if any one of the four conditions is absent, no deadlock is possible.

- Q. 5** What are the main differences between the load-balancing and load-sharing approaches for process scheduling in distributed system? 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 the issues in Designing a thread package? Discuss the relative advantages and disadvantages of implementing a threads package in user space and in the kernel.

- 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? (10)

OR

Name the main components of a distributed file system. What might be the reasons for separating the various functions of a distributed file system into these components?

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