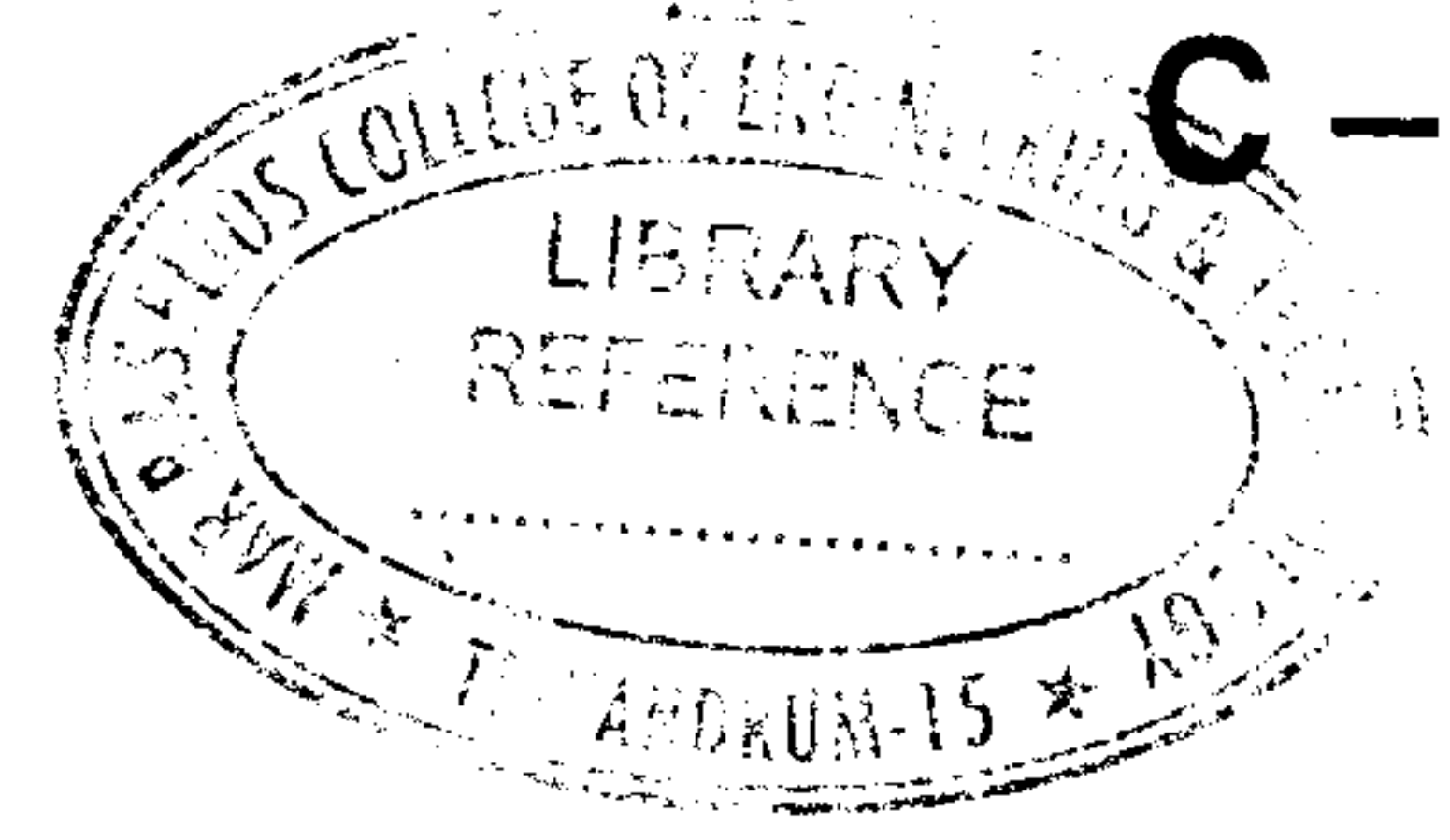




(Pages : 3)



**C – 2486**

Reg. No. : .....

Name : .....

**Eighth Semester B. Tech. Degree Examination, May 2017  
(2013 Scheme)**

**13.803 : DISTRIBUTED SYSTEMS (R)**

Time : 3 Hours

Max. Marks : 100

**PART – A**

Answer **all** questions.

**(5×4=20 Marks)**

1. Discuss about Internet and Intranets.
2. List down the characteristics of IPC.
3. What is Protection ? Give examples.
4. Write short notes on Distributed deadlocks.
5. Discuss about Primary-backup replication.

**PART – B**

Answer **one full** question from **each** Module.

**Module – I**

6. a) Discuss about the issues in the design of distributed system. **10**
- b) List the types of local resource that are vulnerable to an attack by an untrusted program that is downloaded from a remote site and run in a local computer. **10**

**OR**

7. a) Explain about interaction model with appropriate examples. **15**
- b) Suggest a scheme that improves on MobileIP for providing access to a web server on a mobile device which is sometimes connected to the internet by mobile phone and at other times has a wired connection to the Internet at one of several locations. **5**

P.T.O.

**Module – II**

8. a) Describe about the API for internet protocols. 15
- b) Describe a scenario in which a client could receive a reply from an earlier call. 5

OR

9. a) Explain about group communication with real-time scenarios. 10
- b) Define the semantics and design a protocol for a group form of request-reply interaction, for example using IP multicast. 10

**Module – III**

10. a) Explain about operating system architecture with neat diagram. 10
- b) Discuss the issue of naming applied to shared memory regions. 10

OR

11. a) A client makes RMI to a server. The client takes 5 ms to compute the arguments for each request and the server takes 10 ms to process each request. The local OS processing time for each send or receive operation is 0.5 ms and the network time to transmit each request or reply message is 3 ms. Marshalling or unmarshalling takes 0.5 ms per message.

Estimate the time taken by the client to generate and return from 2 requests

- i) If it is single threaded and 15
- ii) If it has two threads which can make requests concurrently on a single processor. Is there a need for asynchronous RMI if processes are multi-threaded? 15
- b) Write short notes on Firewalls. 5

**Module – IV**

12. a) Explain why serial equivalence requires that once a transaction has released a lock on an object, it is not allowed to obtain any more locks.

A server manages the objects  $a_1, a_2, \dots, a_n$ . The server provides two operations for its clients :

read( $i$ ) returns the value of  $a_i$

write( $i$ , Value) assigns Value to  $a_i$

The transactions T and U are defined as follows :

T : x = read( $i$ ); write ( $j$ , 44);

U : write ( $i$ , 55) ; write ( $j$ , 66);

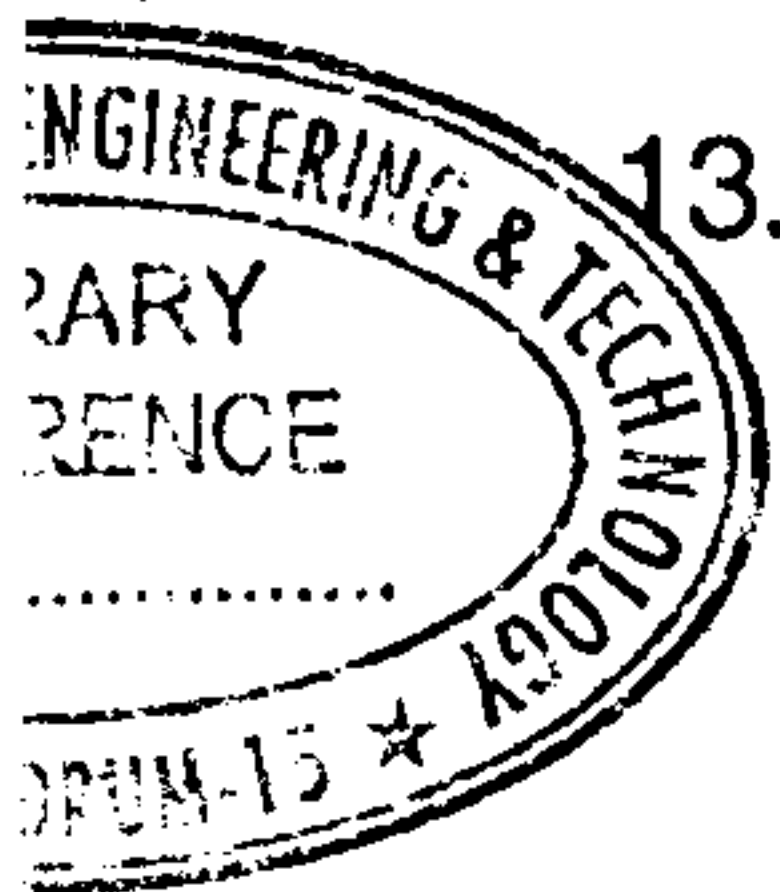
Describe an interleaving of the transactions T and U in which locks are released early with the effect that the interleaving is not serially equivalent. 15

- b) What is the consistency issue raised by state transfer ? 5

OR

13. a) Extend the definition of two-phase locking to apply to distributed transactions. Explain how this is ensured by distributed transactions using strict two-phase locking locally. 10

- b) Explain why making some replica managers read-only may improve the performance of a gossip system. 10



---