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K – 5602

Reg. No. : .....

Name : .....

**Eighth Semester B.Tech. Degree Examination, February 2021.**

**13.803 : DISTRIBUTED SYSTEMS (R)**

**(2013 Scheme)**

Time : 3 Hours

Max. Marks : 100

**PART – A**

Answer all questions. Each question carries 4 marks.

1. What is a distributed system? What determines the openness of distributed systems?
2. State how a forwarded observer may be used to enhance the reliability and performance of objects of interest in an event service.
3. Define and explain mutual exclusion in a distributed system.
4. Three computers together provide a replicated service. The manufacturers claim that each computer has a mean time between failures of five days; a failure typically takes four hours to fix. What is the availability of the replicated service?
5. Why should UFIDs be unique across all possible file systems? How is uniqueness for UFIDs ensured?

P.T.O.



## PART – B

Answer **one full** question from **each** Module. Each question carries **20** marks.

### Module – I

6. (a) Explain the need of distributed systems, its characteristics and the system architecture model with example. **10**
- (b) Describe the advantages and disadvantages of the HTML, URL and HTTP as core technologies for information browsing. **10**

OR

7. (a) Explain the challenges and the design goals to be considered in the design of distributed Systems. **10**
- (b) How the availability of a system can be measured in a distributed environment? Illustrate the architecture of client - server communication. **10**

### Module – II

8. (a) Discuss the design and implementation issues in Remote Method Invocation. **10**
- (b) Describe the architecture for multi threaded servers. Discuss the issues related to thread programming, thread lifetime, thread synchronization, scheduling and implementation. **10**

OR

9. (a) Explain the remote procedure call mechanism with various functional components. **10**
- (b) Write short notes on distributed object and explain how communication is performed between distributed objects. **10**



### Module – III

10. (a) Explain the concept on which the control of access to resources is based in distributed systems. 8
- (b) Discuss important operating systems services that are essential for supporting the development of concurrent and scalable distributed systems. 12

OR

11. (a) Explain how the following techniques scene distributed systems 10
- (i) Digital signature
- (ii) Gedentials
- (iii) Firewalls
- (b) Discuss architecture of Layered distributed operating system. Comment on how well it supports the development of extensible operating systems. 10

### Module – IV

12. (a) Explain with an example how two transactions are interleaved which are serially equivalent at each server but is not serially equivalent globally. 10
- (b) Discuss in detail about deadlock and locking schemes in concurrency control. 10

OR

13. (a) Name all modules of file system operations and write in detail about distributed file system requirements. 10
- (b) Suppose that the coordinator of a transaction crashes after it has recorded the intentions list entry but before it has recorded the participant list or sent out the *canCommit?* Requests. Describe how the participants resolve the situation. What will the coordinator do when it recovers? Would it be any better to record the participant list before the intentions list entry? 10

