

Code No: 126ZP

**R15**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year II Semester Examinations, December - 2018**

**DISTRIBUTED SYSTEMS**

**(Computer Science and Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A**

**(25 Marks)**

- 1.a) Give examples of applications where the use of mobile code is beneficial. [2]
- b) List the three main software components that may fail when a client process invokes a method in a server object, giving an example of a failure in each case. [3]
- c) Why is computer clock synchronization necessary? [2]
- d) What reconfiguration would you expect to occur in the NTP synchronization subnet? [3]
- e) Write the characteristics of inter process communications. [2]
- f) Give a brief note on remote procedure call. [3]
- g) List the characteristics of file systems. [2]
- h) What data must the NFS client module hold on behalf of each user level process? [3]
- i) Write the comparisons of methods for concurrency control. [2]
- j) Give a brief note on atomic commit protocols. [3]

**PART - B**

**(50 Marks)**

- 2.a) What are the advantages and disadvantages of HTML, URLs and HTTP as core technologies for information browsing?
- b) Give five types of hardware resource and five types of data or software resource that can usefully be shared. Give examples of their sharing as it occurs in practice in distributed systems. [5+5]

**OR**

- 3.a) Discuss the mobile and ubiquitous computing.
  - b) With the help of neat diagram, explain the software and hardware service layers in distributed systems. [5+5]
4. Discuss the factors to be taken into account when deciding to which NTP Server a client should synchronize its clock. [10]

**OR**

- 5.a) Devise a protocol for basic multicast over IP multicast.
- b) Is it possible to implement either a reliable or an unreliable failure detector using an unreliable communication channel? [5+5]

6. Explain the design choices that are relevant to minimizing the amount of replay data held at a server. Compare the storage requirements when the RR and RRA protocol are used. [10]

**OR**

7. Discuss how a forwarding observer may be used to enhance the reliability and performance of objects of interest in an event service. [10]

8. Explain in which respects DSM is suitable or unsuitable for client server systems. [10]

**OR**

9. Why should UFIDs be unique across all possible file system? How is uniqueness for UFIDs ensured? Explain. [10]

- 10.a) Discuss the concurrency control in distributed transactions.

- b) With the help of neat diagram, explain the flat and nested distributed transactions. [5+5]

**OR**

11. What are advantages and drawbacks of multi version timestamp ordering in comparison with ordinary timestamp ordering? Explain. [10]

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