

IT
23/4/16 FN

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Question Paper Code : 52565

B.E/B.Tech. DEGREE EXAMINATION, APRIL 2016

Eighth Semester

Computer Science and Engineering

CS 2056 / CS 804 / 10144 CS E53 – DISTRIBUTED SYSTEMS

(Common to Information Technology)

(Regulations 2008/2010)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. Define marshalling.
2. What is the basic method of interprocess communication in UNIX ?
3. Write two examples for RPC.
4. Define thread.
5. After timeout of an RPC call, the NFS client module does not return control to the user level process that originated the call. Why ?
6. What is an alias ? List one of its advantage and disadvantage.
7. Why clock synchronization is necessary ?
8. Give a formula for the maximum throughput of a mutual exclusion system in terms of synchronization delay.
9. State two advantages of shared memory multiprocessors over distributed memory multiprocessors.
10. State the role of ORB core in CORBA.

PART – B (5 × 16 = 80 Marks)

11. (a) Consider a multi-national company with branch offices that are geographically distributed. Currently each branch office has a number of departments that are computerized for their tasks. The hardware, platforms, software in the departments are heterogeneous. The company does not want to change its existing operations. The enhanced system should facilitate a department within a branch office to operate autonomously. It should also facilitate another department/branch office to communicate and retrieve required information. What are the major issues and incompatibilities faced by this system ? Explain. How will you overcome these issues ? (16)

OR

- (b) (i) What is IPC ? Explain IPC in Unix Systems. (8)
- (ii) List atleast three main software components that may fail when a client invokes a method on server object., giving an example of failure in each case. Suggest how the components can be made to tolerate one another's failures. (8)

12. (a) Explain the process of Remote Procedure Call and discuss how it is different from Remote Method Invocation. (16)

OR

- (b) (i) Describe the role of Operating System in the implementation of a distributed system. (10)
- (ii) Write a short note on distributed objects. (6)

13. (a) (i) Explain Sun NFS. (8)
- (ii) Compare the update semantics of UNIX when accessing local files with those of NFS and AFS. Under what circumstances might client become aware of the differences ? (8)

OR

- (b) (i) What security issues are liable to be relevant to a directory service such as X.500 operating within an organization ? (8)
- (ii) Explain DNS. (8)

14. (a) Describe the following giving suitable examples :

(i) Global start (4)

(ii) Logical time (4)

(iii) Mutual Exclusion. (8)

OR

(b) (i) Explain the synchronization with physical and logical clocks. (8)

(ii) Explain distributed debugging scenarios with example. (8)

15. (a) What is CORBA ? Explain its architecture and various services provided by it. (16)

OR

(b) Explain the main issues in building a DSM system on a network of heterogeneous machines. (16)