St. Ann's College of Engineering & Technology

Department of Computer Science and Engineering

SUBJECT: DISTRIBUTED SYSTEM **QUESTION BANK**

UNIT-1

1. Define distributed systems. Explain the significant consequences of defining distributed systems?
2 .Explain briefly the following examples of distributed systems
    1.The internet.
    2.Intranets.
3. Discuss in brief the emerging technology of networks based on mobile devices?
4. Discuss in brief about the WWW?
5. Explain in detail hypertext markup language?
6. Discuss in detail the URL component? with example.
7. Discuss in brief the main features of HTTP?
8. Discuss in brief about the following challenges,
    1.Heterogeneity.
    2.Openness.
9."The construction of DS produces many challenges". List these challenges.
10. Discuss the challenges encountered while designing scalable DS?
11. List and explain the techniques used for dealing with failures?
12. Discuss the reasons why concurrency is considered a challenge while constructing DS?

UNIT-2

1.Explain in briefly about architectural models?
2.Discuss in detail the software and hardware service layers in DS?
3Explain in detail about the following architectural models,
    1.Client server model.
    2.Multiple server model.
4.Write short note on,
    1.Proxy server and caches.
    2.peer processes.
5.Discuss in briefly about,
    1.Mobile agents.
    2.Thin Clients.

3.Network computers.

6.Discuss in brief about mobile devices and spontaneous interoperation?
7.Discuss about the quality of service provided in a DS?
8.Explain in detail the web-caching protocol?
9.Discuss in brief about dependability issues?
10.Explain in detail about the two variants of the interaction model?
11.Define interaction process. Also, discuss two significant factors affecting interacting processes in a DS.
12.Discuss in brief the concept of event handling in DS?
13.Define reliable communication. Also, discuss the independent sources from which threats to integrity is derived.
14.Explain in detail the threats generated from potential enemy?
15.Discuss in brief the techniques used for defeating the threats?
16.Discuss in brief the other possible threats generated from an enemy?
17.List the uses of security models?

UNIT-3

1.Discuss in brief about synchronous and asynchronous communication?
2.Write short note on the following characteristics of IPC,
1.Message destinations.
2.Relaibility.
3.Ordering.
3.Discuss in brief about sockets?
4.Discuss briefly the issues related to datagram communication?
5.Write short note on,
1.Uses of UDP?
2.java API for UDP datagrams.
6.LIst and discuss the characteristics of network that are hidden by stream abstraction?
7.List the issues related to stream communication?
8.Write short note on,
1.Uses of TCP.
2.java API for TCP streams.
9.Discuss in detail about CORBA's common data representation?
10.Discuss in detail java object serialization?
11.What is XML? Explain XML schemes.
12.EXplain the various features of XML?
13.What are the six building blocks of an XML document? give examples.

14.What are the goals of XML?
15.Explain XML parsing?
16.Explain the creation of namespaces in XML? with suitable example.
17.Define an XML schema. show how an XML schema can be created.
18.Give the advantages and disadvantages of XML schema?
19.Explain briefly the request-reply protocol?
20.Discuss in briefly the RPC exchange protocols?
21.Discuss in detail HTTP protocol?
22.List few examples of the effects of reliability and ordering?

UNIT-4

1.Explain about different programming models?
2.Write middleware? Explain the various layers present init?
3.What is an interface? Write about interfaces in DS?
4.Explain about interface definition language with example?
5.Discuss briefly about the various aspects of object moldel?
6.Explain briefly about distributed objects?
7.Explain in detail about distributed object model?
8.What are the design issues of RMI? Explain.
9.Explain modules and objects involved in implementation of RMI?
10.Write about dynamic invocation?
11.How remote objects can be activated? Explain.
12.Write short note on,
    1.Persistent object stores.
    2.Object location.
13.Write about distributed garbage collection?
14.Explain in detail about Sun RPC?
15.Explain the architecture of distributed event notification?
16.Write a note on Jini distributed event specification?
17.Write about the design and implementation of java RMI?

UNIT-5

1.Explain how middleware is supported by OS facilities? Also write about network and distributed OS.
2.What are the reasons that are against the adoption of distributed OS in general use?
3.Explain the core OS functionality with the help of neat diagram.
4.What is meant by protection? Explain about protection in OS kernels.

5.Explain briefly execution environment?
6.Explainin detail about address spaces?
7.Explain the process of creating a new execution environment?
8.Explain how the process is created by the OS?
9.Explain the advantages of having multiple threads in client and server processes?
10.Explain the different ways of mapping requests to threads within a server?
11.Why a multi-threaded process is preferred instead of having multiple single-threaded processes?
12.Write short note on,
    1.Thread synchronization.
    2.Thread scheduling.
13Explain in detail about threads implementation?

UNIT-6

1.Give an overview of types of storage systems and their properties.
2.What are the characteristics of file systems?
3.Discuss various file system operations?
4.What are the requirements for the design of distributed file system?
5.Explain the file service architecture with a neat diagram?
6.List and explain the flat file system operations?
7.Write about access control in file system?
8.Write about,
    1.Hierarchic file system.
    2.File groups.
9.Write about peer-to-peer systems. what are their characteristics?
10.What are the differences between IP routing and overlay routing for peer-to-peer applications?
11.Explain about the peer-to-peer file sharing using Napster's method?
12.Ezplain in detail about routing overlays?

UNIT-7

1.Describe in detail about failure detectors?
2.Describe the central server algorithm?
3.Explain the algorithm for mutual exclusion using multicast and logical clocks?
4.What is the need of election algorithm? Explain a ring based election algorithm.

5.Explain the bully algorithm?
6.What are the essential features of multicast communication?
7.Briefly discuss reliable multicast?
8.Write about the implementation of FIFO ordering?
9.What are the two main methods for assigning identifiers to messages?

UNIT-8

1.Discuss in brief about distributed transactions?
2.Discuss in detail about basic structural model for the management of replicated data?
3.Discuss in brief about group communication?
4.What are the four main tasks performed by a group membership service?
5.Discuss the various issues that a group membership service is capable of dealing with?
6.Discuss in brief about view delivery?
7.Explain in detail about view-synchronous group communication?
8.Discuss in brief about the use of locks in distributed transactions?
9.Explain about timestamp ordering concurrency control?
10.Discuss in detail about optimistic concurrency control?
11.What is a distributed deadlock? Explain briefly with an example.
12.Describe phantom deadlock with an example?
13.Discuss in detail the technique used for detecting deadlock?
14.Explain how priorities are assigned to a transaction?
15.Discuss in brief about transaction recovery?
16.Discuss in detail about logging technique?
17.How objects can be recovered?
18.How a recovery file can be reorganized?
19.Discuss in detail about shadow versions technique?
20.How can two-phase commit protocol can be recovered?
21.What is replication? Discuss in detail the motivations for replication.
22.What are the common and general requirements for replicated data?
23.Explain in detail about passive replication?
24.Explain in detail about active replication? Also explain about the discussion of active replication.