TWO MARKS

1. What is a distributed system?

A distributed system is one in which components located at networked computers communicate and coordinate their actions only by passing messages. The components interact with each other in order to achieve a common goal.

2.What do you mean by message passing?

Message passing is a fundamental mechanism for communication in distributed systems. It enables processes or nodes to exchange messages and coordinate their actions. There are several types of message-passing models, including synchronous, asynchronous, and hybrid approaches.

3.Define Distributed Program?

A computer program that runs within a distributed system is called a distributed program, and distributed programming is **the process of writing such programs**.

4.What do you mean by synchronous and asynchronous execution?

Asynchronous is a non-blocking architecture, so the execution of one task isn't dependent on another. Tasks can run simultaneously. Synchronous is a blocking architecture, so the execution of each operation depends on completing the one before it. Each task requires an answer before moving on to the next iteration.

5.List out the features of distributed systems?

Performance. ...

Scalability. ...

High availability. ...

Data integrity. ...

High reliability. ...

Security. ...

User mobility.

6.Write down the principles of distributed systems?

Distributed file systems are an important part of any organization's data storage and access needs. The design of the system should be based on the principles of scalability, availability, reliability, performance, and security.

7.State the objectives of resource sharing model?

The primary objective of resource sharing is to maximize the resource base,i.e., collection, staff, infrastructure, as well as services of the participating libraries. They would be benefited by the resources of other libraries adding to their own resources.

8.What are the significant consequences of distributed systems?

The components of a distributed system interact with one another in order to achieve a common goal. Three significant challenges of distributed systems are: maintaining concurrency of components, overcoming the lack of a global clock, and managing the independent failure of components.

9. What are the challenges of distributed systems?

The main challenges of distributed system are:

Heterogeneity
Openness
Security
Scalability
Failure handling
Concurrency
Transparency
Quality of service

10. Define Transparency. What are its types?

Transparency is defined as the concealment from the user and the application programmer of the separation of components in a distributed system, so that the system is perceived as a whole rather than as a collection of independent components.

Its types are:

Access transparency
Location transparency
Concurrency transparency
Replication transparency
Failure transparency
Mobility transparency
Performance transparency
Scaling transparency

11.What is the need of openness in distributed system?

Openness: The openness of the distributed system is determined primarily by the degree to which new resource-sharing services can be made available to the users. Open systems are characterized by the fact that their key interfaces are published

12.List any two resources of hardware and software, which can be shared in distributed systems with examples

Five types of hardware resource and five types of data or software resource that can usually be shared are printer,plotter,storage space,cd drive,dvd drive,processing power. For example printer which takes graphics and texts from the computer and later it gets transferred into a paper which is of standard size.

13.Differentiate between buffering and caching

Buffering is a process of temporarily holding data in memory or a buffer before writing it to a permanent storage location. Caching is a process of temporarily storing data in memory for quick access or retrieval. Cache stores copy of the data. Cache is in processor, and can be also implemented with ram and disk.

14.Differentiate between synchronous and asynchronous execution?

Synchronous code executes one line of code after the other, while asynchronous code allows multiple lines of code to run at the same time. Asynchronous code can be much more efficient than synchronous code for certain types of programs, but it is also more complex and harder to debug.

15.What is the role of middleware in a distributed system?

Middleware is an intermediate layer of software that sits between the application and the network. It is used in distributed systems to provide common services, such as authentication, authorization, compilation for best performance on particular architectures, input/output translation, and error handling.

16.Name some services and examples of middleware?

Common middleware examples include database middleware, application server middleware, message-oriented middleware, web middleware, and transaction-processing monitors.

17.What is open in distributed system?

An Open Distributed System is made up of components that may be obtained from a number of different sources, which together work as a single distributed system.

In 1988 the International Standards Organization (ISO) began work on preparing standards for Open Distributed Processing (ODP).

18.Describe what is meant by a scalable system?

A system is scalable when it has the capacity to accommodate a greater amount of usage. Some systems aren't at all scalable, and can only handle exactly the amount of usage they were designed for. Scalable systems can handle extra usage, but their capacity varies.

19.What is replication transparency?

Replication transparency is the ability to create multiple copies of objects without any effect of the replication seen by applications that use the objects. It should not be possible for an application to determine the number of replicas, or to be able to see the identities of specific replica instances.

20.Define access transparency?

Access Transparency **allows the same operations to be used to access local and remote resources**.

PART -B

1.Explain how a parallel system differs from a distributed system (May 2022, Mark-13)

2.Illustrate the difference between message passing and shared memory process communication model (Dec 2022, Mark-13)

3.Discuss the design issuses and challenges in distributed system from a system perspective. (May 2022, Mark-13)