DHANALAKSHMI SRINIVASAN ENGINEERING COLLEGE

PERAMBALUR

DEPARTMENT MCA

CA5254- Middleware Technologies

UNIT - I

1. **What is client/server?**
   Client: the client hardware is the desktop machine that runs client software. It could be a micro or a workstation. The client software formulates data request and passes the request to the network software. This software send the request to the server, accepts the result from the server and passes the request back to the client software. Server: A server is the machine that run data management software that has been designed for server functionality. A server has operating system software, data management software and a portion of the network software.

2. **Define file server?**
   File server: file servers manage a work group's application and data files, so that may be shared by the group. File servers are very I/O oriented . they pull large amounts of data off their storage subsystems and pass the data over the network. When the data from the file is requested, a file server transmit it all records from the file.

3. **What are the service specific middleware available?**
   1. ODBC: open database connectivity is a windows technology that lets a database client application connect to a external database. To use ODBC, the database vendor must provide an ODBC drive for data success.
   2. HTTP: hyper text transfer protocol is the underlying protocol used by the world wide web. HTTP defines how message are formatted and transmitted and what action web servers and browsers should take in response to various commands. HTTP only supports transmission of text.

4. **Define the services provided by web server?**
   Web server: a web server is a computer system that delivers web pages. Every web server has an IP address and possibly a domain name. for example an URL: http:// www.niceindia.com/index.html in our browser . This sends a request to the server whose domain name is niceindia.com. the server fetches the page named index.html and sends back to our browsers.

5. **Define TCP/IP and SPx?**

   TCP/IP : transfer control protocol and internet protocol.

6. **What is remote procedure call?**

   Remote procedure call (RPC): one of the earliest facilities that was created to help programmers write client/server software is know generically as a remote procedure call mechanism. When implementing a program, the programmer uses procedures to keep the code manageable. Instead of defining a single, large procedure that performs many task, the programmer divides the tasks into sets and uses shorter procedure to handle each set. A client procedure process calls a function on a remote server and suspends itself until it gets the result is called remote procedure call.

7. **What are the different categories of client/ server applications?**

   Classes of client/server applications: client/server applications can be categorized by class, based on where most of the processing is done. Each class requires different and software capabilities on the client, the server and the network.

   1. Host-based processing
   2. Client-based processing
   3. Cooperative processing

8. **What is meant by client, server & network?**

   Client: the client hardware is the desktop machine that runs client software. It could be a micro or a workstation. The client software formulates data request and passes the request to the network software. This software sends the request to the server, accepts the result from the server and passes the request back to the client software.

   Server: A server is the machine that runs data management software that has been designed for server functionalilty. A server has operating system software, data management software and a portion of the network software.

   Network: the network hardware is the cabling, the communication cards and the devices that link the servers and the clients.

9. **Define application server?**

   Application server : application server, which provides specific application services to an application. Application server are the type of middleware, which occupy a large chunk of computing territory between database server and end users.

10. What is meant by HTTP and ODBC?

ODBC: open database connectivity is a windows technology that lets a database client application connect to a external database. To use ODBC, the database vendor must provide an ODBC drive for data access.

HTTP: hyper text transfer protocol is the underlying protocol used by the world wide web. HTTP defines how message are formatted and transmitted and what action web servers and browsers should take in response to various commands. HTTP only supports transmission of text.

11. Define group server?

Groupware Server : a groupware server is a software designed to enable users to collaborate, regardless of location through the internet and to work together in virtual atmosphere.

12. Define TCP and IPx/SPx.

TCP/IP : transfer control protocol and internet protocol.

13. What is peer-to-peer communication?

peer-to-peer : most early client/server application were implemented using low level conversational peer-to-peer indicates that two side of a communication link use the same protocol interface to conduct a networked conversation. Any computer can initiate a conversation with any other computer. A peer-to-peer network relationship defines one in which computer on the network communicate with each other as equals. Each computer is responsible for making its own resources available.

14. What are the different categories of client/server applications?

a) Host-based processing
b) Client-based processing
c) Cooperative processing

15. What is Server & network?

Server: A server is the machine that runs data management software that has been designed for server functionality. A server has operating system software, data management software and a portion of the network software.

Network: the network hardware is the cabling, the communication cards and the devices that link the servers and the clients

16. What is meant by client & network?

Client: The client hardware is the desktop machine that runs client software. It could be a micro or a workstation. The client software formulates data request and passes the request to the network software. This software sends the request to the server accepts the result the server and passes the request back to the client software.
Network: the network hardware is the cabling, the communication cards and the devices that link the servers and the clients.

17. What is application server?

Application server, which provide specific application services to an application. an example is a server that runs a database that a distributed application users .
Application servers are the type of middle ware, which occupy a large chunk of computing territory between database servers and end users, and they often connect the two.

18. What is database servers?

Database servers, which provide database storage and data sharing with other computers In the network. Database servers more and store data records or database over corporate networks and across the internet.

19. What is group server?

A groupware server is a software designated to enable users to collaborate, regardless of location through the internet or a corporate intranet and to work together in a virtual atmosphere.

20. What is web server?

A web server is a computer system that delivers web pages. Every web server has an IP address and possibly a domain name

21. What is FTP Servers?

FTP servers one of the oldest internet services. It makes its possible to move one or more files. Securely between computers while providing file security and organizations as well as transfer control .

22. What is Mail server?

Mail servers move and store mail over corporate networks (VIA LAN'S AND WAN'S) and across the internet.

23. What is News servers?

news servers act as a distributions and delivery sources for the thousand of public news groups currently accessible over the USENET. News network

24. What is ODBC?

Open database connectivity is a windows technology that lets a database client application connect to a external database. To use ODBC, the database vendor must provide an ODBC drive for data access.

25. What is HTTP?

Hyper text transfer protocol is the underlying protocol used by the World Wide Web. HTTP defines how message are formatted and transmitted and what action web servers and browsers should take in response to various commands.

26. What is MOM?

Message oriented middleware allows general purpose message to be exchanged in a client /server system using message queues. MOM messaging and queuing allow clients and servers to communicate across a network without being linked by a private dedicate, logical connection.

27. What is file server?

file servers manage a work group, s application and data files, so that may be shared by the group. File servers are very I/O oriented . they pull large amounts of data off their storage subsystems and pass the data over the network. When the data from the file is requested, a file server transmit it all records from the file and the entire index to the client.

Unit II &III

28. What is EJB?

Enterprise java bean is a server-side component architecture that simplifiers the process of building enterprise-class distributed component application in java.

29. What is the role of system administrator in EJB server?

System administrators are responsible for the day-to –day operations of the EJB server. Their responsibilities include keeping security information up-to-date and monitoring the performance of the server.

30. Define bean with bean-managed persistent?

An entity bean with bean-managed persistent contains code the updates the underlying database. Each entity bean instance has an associated key. Logically, a primary key is a value or combination of values that allows to uniquely specify a row of data.

31. What is entity bean?

Entity beans are long-lived, they exist across client session, one shared by multiple clients and remain alive even after a restart of the server or other failures. An entity bean must implement the entity bean interface.

32. What is session bean?

Entity beans are generally tied to the lifetime of a given client session. They are relatively short-lived, state full session object are created in response to a single clients request.

33. What is enterprise java bean?

Enterprise java bean : EJB are write-once, run-any-where middle-tire component. Enterprise java bean is a server side component architecture that simplifies the process of building enterprise-class distributed component applications in java.

34. What is session bean?

Entity beans are generally tied to the lifetime of a given client session. They are relatively short-lived, state full session object are created in response to a single clients request.

35. What is state full session?

State full session is a bean that changes state during a conversation, i.e. a bean that has instance variables.

36. What is meant by deployment?

Deployment is the process of installing an object in server side.

37. What is interface?

An interface defines the protocol of communication between two separate components of a system. The interface describes what services are provided by a component and the protocol for using those services.

38. Write short notes on transaction monitor?

A transaction monitor service oversees transition on behalf of other objects. A transaction, in turn, is an operation or set of operation that must be performed automatically, that is ,either all objects involved in the transaction must commit the transaction or all objects involved must abort the transaction.

39. Define directory services.

Directory services refers to a set of services that enable objects, which can be serves, businesses, or even people, to be located by other objects.

40. What is marshaling and unmarshaling?

Marshaling refers to the process of translating input parameters to a format that can be transmitted across a network. Unmarshaling is the reverse of marshaling; this process converts data from the network to output parameters.

Unit IV

41. Define CORBA.

The common object request broker architecture (CORBA) from the Object Management Group (OMG) provides a platform-independent, language-independent architecture for writing distributed, Object-oriented applications. CORBA objects can reside in the same process, on the same machine, down the hall, or across the planet. The Java language is an excellent language for writing CORBA programs. Some of the features that account for this popularity include the clear mapping from OMG IDL to the Java programming language, and the Java runtime environment's built-in garbage collection.

42. What is meant by ORB?

A fundamental part of the Common Object Request Broker architecture is the Object Request Broker (ORB). The concept of an ORB is this: When an application component wants to use a service provided by another component, it first must obtain an object reference for the object providing that service. After an object reference is obtained, the component can call methods on that object, thus accessing the desired services provided by that object. The primary responsibility of the ORB is to resolve requests for object references, enabling application components to establish connectivity with each other.

43. What does IIOP stand for and what is its significance?

The Internet Inter-ORB Protocol (IIOP) is a specialization of the GIOP. IIOP is the standard protocol for communication between ORBs on TCP/IP based networks. An ORB must support IIOP (but can support other additional protocols) in order to be considered CORBA 2.0 – compliant.

44. What is an Object reference?

When an object is passed by reference, the object itself remains "in place" while an object reference for that object is passed. Operations on the object through the object reference are actually processed by the object itself.

45. What is IDL and why is it useful?

The Interface Definition Language (IDL) is a standard language used to define the interfaces used by CORBA objects. The IDL specification is responsible for ensuring that data is properly exchanged between dissimilar languages. For example, the IDL long type is a 32-bit signed integer quantity, which can map to a C++ long (depending on the platform) or to a Java int. it is the responsibility of the IDL specification—and the IDL compilers that implement it—to define such data types in a language-independent way.

46. Write short notes on Deployment Descriptor?

Deployment is the process of specifying middleware requirements to the container. The deployment descriptor class is the base class used both Session Descriptor and Entity Descriptor.

47. Define Language Mapping.

A language mapping is a specification that maps IDL language constructs to the constructs of particular programming language. For example, in the C++ language mapping, the IDL interface maps to a C++ class.

48. Define IDL comments.

Comments in IDL follow the same conventions as Java and C++. Both C-style and C++-style comments are allowed, as illustrated in Listing 3.1. (Note that the second comment in the listing contains embedded comment characters, these are for description purposes only and are not actually allowed by IDL.)

```
//This is a C++-style comment. Anything following the "//"
//characters, to the end of the line, is treated as part of the comment.
/*  This is a C-style comment. Anything between the beginning "/*" characters and the
trailing "/*" characters is treated as part of the comment. */
```

49. What is Partitioning?

The grouping together of similar interfaces, constant values, and the like is commonly referred to as partitioning and is a typical step in the system design process (particularly in more complex systems). Partitions are also often referred to as modules (which should be no surprise) or as packages (in fact, the IDL module concept closely resembles the Java package concept—or the other way around, because IDL came first).

50. Define GIOP.

The General Inter-ORB Protocol (GIOP) is a high-level standard protocol for communication between ORBs. Because GIOP is a generalized protocol, it is not used directly; instead, it is specialized by a particular protocol that would then be used directly.

51. What is Distributed Computing Environment?

The Distributed Computing Environment is a set of standard pioneered by the open software foundation (OSF), includes a standard for RPC. Although the DCE standard has been around for some time, and was probably a good idea, it has never gained wide acceptance and exists today as little more than an historical curiosity.

52. What is Java RMI?

Java Remote Method Invocation helps to invoke remote object from remote server.

53. What is Client Stub?

A client stub, which is generated b the IDL compiler, is a small piece of code that makes a particular CORBA server interface available to a client.

54. What is Server Skeleton?

A server skeleton, also generated by the IDL compiler, is a piece of code that provides the “framework” on which the server implementation code for a particular interface is built.

55. What is Language Mapping?

A language mapping is a specification that maps IDL language constructs to the constructs of a particular programming language. For example, in the C++ language mapping, the IDL interface maps to a C++ class.

56. Define Serialization.

Serialization refers to the encoding of an object's state into a stream, such as a disk file or network connection. When an object is serialized, it can be written to such a stream and subsequently read and deserialized, a process that converts the serialized data containing the object's state back into an instance of the object.

57. Define activation policy?

A server Activation Policy indicates how that particular server is intended to be accessed, for example, if there is a single server used by all clients, or a new instance of the server should be started for each client and so on.

58. What is callback method?

Client callback method or simply callback is a generic term given to a method that is implemented by a client called by a server .Callback essentially makes a client.

59. Define the capabilities of OMA?

OMA capabilities include event management, licencing, object persistence, naming, security, transaction, user interface management, data interchanging, and amd much more. The interface for using these capabilities is standardized by the OMG, meaning that their usage is consistent across platforms and products.

60. Why is language mapping a necessary part of CORBA?

Because CORBA object interfaces are specified in IDL, which is independent of many implementation language .it is necessary to specify a methodology for converting IDL data types to data types of the implementation language(s) chosen. The language mapping for a particular implementation language describes this methodology. Furthermore language mapping for many common language are standardized, meaning that an application written to use one CORBA product can be made to work with a different product with little or no modification.

61. What is naming service?

Naming define how CORBA object can have friendly symbolic names.

UNIT-V

62. What is mean by COM?

Component object model (COM) specifies architecture a binary standard, and a supporting infrastructure for building, using and evolving component-based application. It extends the benefits of object oriented programming such as encapsulation, polymorphism, and software reuse to a dynamic and cross –process setting. Distributed COM (DCOM)is the distributed

extension of COM.It specifies the addition infrastructure that is required to further extend the benefits to networked environment.

63. Define the term interface?

An interface is collection of functionally related abstract methods, and is identified by a 128-bit globally unique identifier (GUID) called interface ID (IID).

64. What is common language runtime?

A .net equivalent of java virtual machine (JVM).it is the run time that converts a MSIL code into the host machine language code. This is then executed appropriately.

65. What is Microsoft Intermediate Language?

A .net programming language(C#,VB.NET,J# etc)does not compile in to executable code; instead it compiles into an intermediate code called Microsoft Intermediate Language(MSIL).As a programmer one need not worry about the syntax of MSIL-since our source code in automatically to MSIL.

66. What is common type system (CTS)?

Achieved through introduction of common type system (CTS).CTS much like java ,define every data type as a class. Every .Net comp lint language must stick to this definition. since CTS define every data type as a class. This means that only object oriented (or object based) languages can achieves .NET compliance.

67. What is web service?

Web service is an extension of active. those of who have used ASP and JSP both, know the apparent short comings of ASP.JSP has been enriched with the concept of beans and tags.ASP equivalent for beans and tag was active controls and actives automation servers. let me take a minute to explain this point a bit further .web service is not a micro propriety standard .it is a W3Consort item standard and has been developed by Microsoft ,IBM an many names of the industry.

68. What is mean by Web forms?

Just as the web forms provide a unified way of developing GUI for desktop application the web forms provide similar tool for web applications.web forms has been introduced in .Net as a part of ASP.NET.Web forms are a engine ,that provide a browser –based user interface.

69. What is a window form?

Window form (also called win forms)are used to create GUI for windows desktop application. The idea of win forms has been borrowed from windows foundation classes (WFC) which were

used for visual J++.win forms provide an integrated and unified way of developing GUI.It has a rich variety of windows controls and user interface support.

70. What is binary standard?

COM specifies a binary standard for interface to ensure dynamic interoperability of binary objects possibly build using different programming languages.specically any COM interface must satisfy two requirement .first its instantiation must follow a standard memory layout, which is the same as the C++ virtual function table. In other words ,a COM interface pointer that points to an array of virtual function pointers .second any COM interface must inherit from the unknown interface so that its first three method are (1)Query interface () for navigating between interfaces of the same object instance,(2)AddRef() for incrementing reference counts and (3) Release() for decrementing reference counts.

71. What is programming model?

A typical Client /Server interaction in COM goes like this client Starts activation phase by calling CoCreateInstance () with the CLSID of the requested object and the IID of the requested interface. It gets back an interface pointer from the call. Upon returning the interface pointer the object calls AddREf () on itself. In the method invocation phase the client invokes method of the interface through of pointer as if the object resides in its own address space .when the client needs methods of another interface of the same object,it calls Query Interface() on the current interface and specifies the IID of the second interface .once it get back a pointer to the second interface, it can invoke methods as usual when the client finishes using either interface pointer ,it calls Release()_ on the pointer.

72. What is distributed COM?

The DCOM wire protocol extends the remoting architecture across different machines.currently,it is specified as a set of extension layered on top of the DCE RPC specification. It adopts DCE RPC'snetwork data representation (NDR) form for marshaling data to transmit across heterogeneous network. It also leverages DCE RPC security capabilities for authentication, authorization, and message integrity. In addition DCOM specifies the RPC interfaces for remote server activation, ID-to-endpoint resolution, remote unknown method invocation and pinging for rebuts referene counting. It also defines the data structure of object reference and the DCOM Specific portion of R{C packets.

73. What is Threading Model?

If an application allows multiple clients to concurrently invoke methods of the same COM object, some synchronization mechanism need to be provided to protect the data COM introduces the concept of apartments to allow objects with different concurrency constraints to live in the same process. An apartment is a logical grouping of objects that share the same concurrency constraints. Before a threat can use COM,it must first enter an apartment by calling CoInitializeEx().every COM process can have at must one multithreaded apartment (MTA),but it can contain multiple single threaded need to be properly protected .It contrast

only one thread can execute in an STA and so concurrent accesses to objects in an STA are automatically serialized.

74. What is versioning?

COM's approach to versioning is based on the following three requirements: first any interface must be immutable. Second, a new implementation of the same CLSID must support existing interfaces. Finally any client must start interacting with a server by querying an interface with an IID.such a combination allows independent evaluation of the client and server software .suppose on particular machine, the server software is upgraded before the client is. Since the new server support all old interface, the old client can still obtain all the interface pointers that it needs an drunk smoothly. When the client software is also upgraded first on another machine. The new client will try querying the new interfaces on the old server and fail. this procedure forces the new client to handle the failure by, for example, providing only old feature. But it will not cause the new client to crash or unknowingly execute incorrectly .admittedly there are still problems in practice that remain to be solved .for example bug fixes of an existing interface implementation may change the behavior, new implementation of the same CLSID may not be willing to carry all old implementations.

75. What is Marshalling and Remoting?

In computer programming ,marshalling us the process of gathering data from one or more application or non-contiguous source in computer storage, putting the data pieces into a message buffer ,and organizing or converting the data into a format that is prescribed for a particular receiver or programming interface .marshalling is usually required when passing the output parameters of a program written in one language as input to a program written in another language ,the process of gathering data can transcend network boundaries, in order for an object to be moved around a network, it must be converted into a data stream that corresponds with the packet structure of the network transfer protocol. this conversion is known as data marshalling .data pieces are collected in a message buffer before they are marshaled. When the data is transmitted the receiving computer converts the marshaled data back into an object.

76. What is object creation?

To create a COM object and get an interface from the object, you call the COM library API CoCreateInstance ().

The parameters are:

ReLsid

The CLSID of the coclass.for example you can pass CLSIDshelllink to create a COM object used to create shortcuts.

Punk Outer this is only used when aggregationCOM objects, which is a way of taking an existing coclass and adding new method to it .for our purposes, we can just pass NULL to indicate we're notdwClsContext.

Indicates what kinds of COM servers we want to use. For this article, we will always be using the simplest kind of server, an in process DLL, so we'll pass

CLSCTX_INPROC_SERVER One caveat: you should not use CLSCTX_ALL(which is the default in ATL)because it will fail one windows 95 system that do not have DCOM installed.

Riid

The IID of the interface you want returned .for example you can pass IID_IShellLink to get a pointer to an IShellLink Interface

PPV

Address of an interface pointer. The COM library returns the requested interface through this parameter. When you call CoCreateInstance().it handles looking up the CLSID in the registry, reading the location of the server, loading the server into memory, and creating an instance of the co class you requested.

77. What is objects destruction?

We don't free COM objects you just tell them that you're done using them. the Unknown interface, which every COM object implement ,has a method Release ().You call this method tell the COM object that you no longer need it. Once you call Release(),you must not use the interface pointer any more ,since the COM object may disappear from memory at any time .If our app uses a lot of different COM objects, It's vitally important to call Release() whenever you're done using an interface. If you don't release interface, the COM objects (and the DLLs that contain the code) will remain in memory and will needlessly add to your app's working set. If your app will be running for a long time, you should call the Co FreeUnusedLibraries () API during your idle processing .this API unloads any COM servers that have no outstanding interfaces, so this also reduces your app's memory usage.

78. Explain COM Interfaces?

Every COM interface is derived from Unknown .the name is a bit misleading ,in that it's not an unknown interface.tha name signifies that if you have an Unknown pointer to a COM object ,you don't know what the underlying object is since every COM object implements I Unknown.

Unknown has three methods:

1. AddRef ()-Tell the COM object to increment its interface count. You would use this method if you made a copy of an interface pointer, and both the original and the copy would still be used. We won't need to use AddRef () for our purpose in this article.

2. Release ()-Tells the COM object to decrement its interface pointer count .see the previous example for a code snipped demonstrating Release ().

3. QueryInterface ()-Requested an interface pointer from a COM object .You use this when a co class Implement s more than one interface.

79. What is Component?

Component is an independent piece of code that may be shared with different programs.

80. What is an Object?

An Object is a set of code that is designed to be reusable with a well defined interface.

81. What is DCOM?

Distributed component object model is the combination of COM plus the network protocol that allow running a COM object on a remote computer.

82. What is class module?

The class module in visual basic is where we define an object‘s template. With in the class we setup the properties, methods and events that the class will offer to outside users.

83. What are the elements of Class module?

It’s merely a collection of subroutines in a module are called variables.

84. What is module variable?

Variables declared outside the routines in a module are called variables.

85. What are EXE files?

Exe files contain object code that is run nuder control of windows. EXE files use the portable Executable format, which is common across all windows systems, including those that run on different processors.

86. What is Dynamic Link Library?

Dynamic Link Library file contain collection of functions and subroutines that can be shard among multiple programs, including EXE programs and other DLL’s.

87. What is Method Routines?

Method Routines are nothing but functions and subroutines that are buried in a class module.

88. What is Event Declaration?

Event Declaration allows our class objects to call a subroutine in a client program.

89. What is Indirection?

Many software problems can be solved by one more of Indirection. Supporting indirection is a special from of providing extensibility. In most traditional programming paradigms, offering one more level of indirection often involves tricky programming hacks that may impose certain limitation. In contrast, COM builds into its architecture the support for indirection. As demonstrated in the following discussion, activation indirection can be used for online software update and load balancing, while call indirection can facilitate fault tolerance and object migration.

90. What is coupling?

Coupling means that components in separate modules are not tightly integrated with each other, an application using components in one module generally need not know about components in another module. (Of course, there is often some overlap between modules for various reason, such as the need to share data between modules or to facilitate common functionality between modules, such as the need to share data between components, they are said to be loosely coupled

91. What is Cohesion?

Cohesion means that interfaces within the module are tightly integrated with each other. For example, a module called internal combustion Engine might contain interfaces such as Cylinder Head, Timing Chain, crankshaft, piston, and many others. It is difficult to describe the purpose of one of these components without referring to the others hence, one might say that the components are tightly cohesive. By way of comparison, you would probably find very little in common between the components of internal combustion Engine and for instance, Audio System components such as compacDiscPlayer and Subwoofer.

92. Explain constructed Type in Data Types?

Constructed types, which combine other types, enable the creation of user-defined types. Perhaps the most useful of these constructs is the interface, which defines the services provided by your application objects. Because IDL is after all the Interface Definition Language, it seems fitting that interfaces should comprise the bulk source code.

93. Explain Enumerated Data types?

The enumerated type, enum, allows the creation of types that can hold one of a set of predefined values specified by the enum. Although the identifiers in the enumeration comprise an ordered list, IDL does not specify the ordinal numbering for the identifiers. Therefore, comparing enum values to integral values mighy not be safe, and would almost certainly not be portable across language. C and C++ also have an enum erated type that works similarly.

94. Explain the Structure data Types?

IDL provides a structure type – struct –that contains, as in C and C++, any number of member values of disparate type (even other structs). Structs are especially useful in IDL because, unlike CORBA objects (Which are represented by interfaces), structs are passed by value rather by reference. In other words, when a struct is passed to a remote object, a copy of that struct's values is created and marshaled to the remote object.

95. Explain Union Data types?

The IDL union type, like a struct, represents values of different types. The IDL union type will appear somewhat odd to C and C++ programmers, resembling something of a cross between a C/C++ union and a case statement, but pascal programmers should recognize the format.

96. What is Discriminator?

A discriminator as used in an IDL union is a parameter that determines the value used by the union In the example in Listing 3.5, a long was used for the discriminator, other types can used also, including long, long short, unsigned long, unsigned long long, unsigned short, char, Boolean, or enum. The constant values in the case statements must match the discriminator's type.

97. What is Method Signature?

A method signature, often simply called a signature what a method does (ideally, the method name should specify, at least in general terms, what the method does), what parameters (and their types) the method takes as input, and what parameters(and their types) it returns as output. In, out, and input Parameters As already mentioned, parameters in a method can be declared as in, out parameter is an output from the method and an in out from the method.

98. What is Blocking on a remote method call?

The term blocking refers to any point at process or thread is waiting for a Particular resource or another process / thread. Within the context of CORBA, if a client invokes a remote method and must wait for the result to be returned, the client is said to block. A request is simply another name for a remote method invocation. The term is commonly used when referring to the operation of a distributed system. In fact, when you study CORBA's Dynamic Invocation Interface (DII), you'II see that remote methods can invoked through a Request object.

99. What is .NET?

The .NET Framework introduces a completely new model for the programming and deployment of application. .NET is Microsoft's vision of "Software as a service", a development environment in which you can build, create, and deploy your application and the next generation of components, the ability to use the Web rather than your own computer for various services.

100. What are the major components (layers) of .Net framework:

The top layer includes user and program interface .windows forms are a new way to create standard win32 desktop application ,based on the windows foundation classes for J++.Web form provide a powerful ,forms based UI for the web.Webservices,which are perhaps the most revolutionary, provide a mechanism for program to communicated over the internet using SOAP. Web services provides an analog of COM and DCOM for object brokering and interfacing .but based on internet technologies so that all allowance is made for integration even with non-Microsoft platforms.web forms and windows services, comprise the internet interface portion of .NET and are implemented through a section of the .NET framework, making them universally and standardizing their usage across languages.

101. What is Remoting Architecture?

We use the term remoting architecture to refer to the entire infrastructure that connects COM client to out of process server objects. The standard remoting architecture includes, among other things.(1) object proxies: that act as the client –side representative of server objects and connect directly to the client;(2)interface proxies: that perform client side data marshaling and are aggregated into object proxies;(3)client-side channel object that use remote procedure calls RPCs to forward marshaled calls;(4)server-side endpoints that receive RPC requests,(5)server side stub manager that dispatches calls to appropriate interface stubs(6)interface stubs that perform server side data marshaling and make actual calls on the objects; and (7)standard marshaled that marshals interface pointer into object reference on the server side unmarshals that object reference on the client side. Note that interface proxies and stubs are application specific and are generated by running an interface definition language(IDL)compiler on application supplied IDL files .The other object are application –independent and are provided by COM