

**NOORUL ISLAM COLLEGE OF ENGINEERING, KUMARACOIL**

**DEPT OF COMPUTER SCIENCE AND ENGINEERING**

**2 MARKS QUESTIONS AND ANSWERS**

**CS1401 - Internet Programming**

1. What is the difference between node and host?

A node is any addressable device connected to a network whereas the host is a more specific descriptor that refers to a networked general-purpose computer rather than a single purpose device (such as a printer).

2. What is the purpose of routers?

Router operates like electronic postal workers that evaluate and forward packets between networks.

3. Define protocol.

A protocol is a formal set of rules that must be followed in order to communicate.

4. Why are the protocols layered?

Layering protocols simplifies the task of communicating over the network and it allows for reuse of layers that are not specific to a particular application.

5. Define encapsulation.

Placing the data inside a package of headers is known as encapsulation.

6. Define port.

A port is a logical channel to an application running on a host. ie., The applications running on the host machines are uniquely identified by port numbers.

7. What do you mean by well-known ports?

Port numbers can range from 1 to 65535, however ports 1 to 1023 are reserved. These reserved ports are referred to as well-known ports because the Internet Assigned Numbers Authority publicly documents the applications that use them.

8. What is meant by Name Resolution?

Name Resolution is the process of mapping a hostname to its corresponding IP Address.

One way to translate a hostname to an IP address is to look it up in a simple text file. The second way is the domain name service, which is a distributed database containing all registered hostnames on the Internet and their IP addresses.

9. Define protocol tunneling.

Protocol tunneling is the process of encapsulating one protocol within another protocol that operates on the same layer.

10. Define URI, URL, URN.

1. URI (Uniform Resource Identifier): It identifies an object on the Internet.

2. URL (Uniform Resource Locator): It is a specification for identifying an object such as a file, newsgroup, CGI program or e-mail address by indicating the exact location on the internet.

3. URN (Uniform Resource Name): It is a method for referencing an object without declaring the full path to the object.

11. What are the components of HTTP URL?

The components are host, an optional port, path, filename, section and query string.

12. Define URL encoding.

URL encoding involves replacing all unsafe and nonprintable characters with a percent sign (%) followed by two hexadecimal digits corresponding to the character's ASCII value.

13. What are the issues of next generation IP?

The issues to be considered in IP next generation are

1. Addresses Space Growth
2. Support large Global networks
3. A clear way of transition from the existing IP to new IP next generation

14. What is the difference between TCP and UDP?

**TCP:**

Connection oriented transport protocol  
Sends data as a stream of bytes  
Guarantee of delivery

**UDP:**

Connection less protocol  
Datagram service  
No guarantee of delivery.

15. What does ICMP provide?

ICMP provides

1. Error messaging
2. Demand reply functions

16. Define IGMP.

It is Internet Group Management protocol. It provides

1. Broadcasting
2. Multicasting

17. List the goals of SGML.

1. To manage the flow of millions of pages.
2. For structuring information exchange
3. For modeling inter-document linkages
4. For managing information flows between departments and weapons systems

18. What is the role of server?

The server

1. Manages application tasks
2. Handles storage
3. Handles security
4. Provides scalability
5. Handles accounting and distribution

19. What are the necessities of using HTML forms?

1. Gathering user information

2. Conducting Surveys
3. Interactive services
20. What are the sequences of steps for each HTTP request from a client to the server?
  1. Making the connection
  2. Making a request
  3. The response
  4. Closing the connection

21. Define MIME.

MIME (Multipurpose Internet Mail Extensions) is an open standard for sending multipart, multimedia data through Internet email.

22. List the predefined MIME content types.

1. Text
2. Multipart
3. Message
4. Image
5. Audio
6. Video
7. Model
8. Application

23. Define HTML.

It is a simple page description language, which enables document creation for the web.

24. What is meant by loop back address?

A zone that enables the server to direct traffic to itself. The host number is almost always 127.0.0.1.

25. Define CGI -Common Gateway Interface.

A specification for transferring information between a World Wide Web server and a CGI program. A CGI program is any program designed to accept and return data that conforms to the CGI specification. The program could be written in any programming language, including C, Perl, Java, or Visual Basic.

CGI programs are the most common way for Web servers to interact dynamically with users. Many HTML pages that contain forms, for example, use a CGI program to process the form's data once it's submitted. Another increasingly common way to provide dynamic feedback for Web users is to include scripts or programs that run on the user's machine rather than the Web server. These programs can be Java applets, Java scripts, or ActiveX controls. These technologies are known collectively as *client-side* solutions, while the use of CGI is a *server-side* solution because the processing occurs on the Web server.

One problem with CGI is that each time a CGI script is executed, a new process is started. For busy Web sites, this can slow down the server noticeably. A more efficient solution, but one that it is also more difficult to implement, is to use the server's API, such as ISAPI or NSAPI. Another increasingly popular solution is to use Java servlets.

26. Write a note on Internet Information Server (IIS).

Microsoft's Web server that runs on Windows NT platforms, In fact, IIS comes bundled with Windows NT 4.0. Because IIS is tightly integrated with the operating system, it is relatively easy to administer. However, currently IIS is available only for the Windows NT

platform, whereas Netscape's Web servers run on all major platforms, including Windows NT platform, OS/2 and UNIX.

27. What are ISAPI (Internet Server API) and NSAPI (Netscape Server API)

ISAPI (Internet Server API): An API for Microsoft's IIS (Internet Information Server) Web server. ISAPI enables programmers to develop Web-based applications that run much faster than conventional CGI programs because they're more tightly integrated with the Web server. In addition to IIS, several Web servers from companies other than Microsoft support ISAPI.

NSAPI -Netscape Server API: An API for Netscape's Web servers. NSAPI enables programmers to create Web-based applications that are more sophisticated and run much faster than applications based on CGI scripts.

28. What is API -Application Program Interface?

A set of routines, protocols, and tools for building software applications. A good API makes it easier to develop a program by providing all the building blocks. A programmer puts the blocks together.

Most operating environments, such as MS- Windows, provide an API so that programmers can write applications consistent with the operating environment. Although APIs are designed for programmers, they are ultimately good for users because they guarantee that all programs using a common API will have similar interfaces. This makes it easier for users to learn new programs.

29. What are Servlets?

A small program that runs on a server, the term usually refers to a Java applet that runs within a Web server environment. This is analogous to a Java applet that runs within a Web browser environment.

Java servlets are becoming increasingly popular as an alternative to CGI programs. The biggest difference between the two is that a Java applet is *persistent*. This means that once it is started, it stays in memory and can fulfill multiple requests. In contrast, a CGI program disappears once it has fulfilled a request. The persistence of Java applets makes them faster because there's no wasted time in setting up and tearing down the process.

30. What are Applets?

A program designed to be executed from within another application. Unlike an application, applets cannot be executed directly from the operating system. With the growing popularity of OLE (object linking and embedding), applets are becoming more prevalent. A well-designed applet can be invoked from many different applications.

Web browsers, who are often equipped with Java virtual machines, can interpret applets from Web servers. Because applets are small in files size, cross-platform compatible, and highly secure (can't be used to access users' hard drives), they are ideal for small Internet applications accessible from a browser.

### 31. What do you mean by Server-side?

Occurring on the server side of a client-server system. For example, on the World Wide Web, CGI scripts are server-side applications because they run on the Web server. In contrast, JavaScript scripts are client-side because they are executed by your browser (the client). Java applets can be either server-side or client-side depending on which computer (the server or the client) executes them.

### 32. What is a protocol?

An agreed-upon format for transmitting data between two devices. The protocol determines the following:

- 1.The type of error checking to be used
- 2.Data Compression method, if any
- 3.How the sending device will indicate that it has finished sending a message
- 4.How the receiving device will indicate that it has received a message

There are a variety of standard protocols from which programmers can choose. Each has particular advantages and disadvantages; for example, some are simpler than others, some are more reliable, and some are faster. The protocol can be implemented either in hardware or in software.

### 33. What is ActiveX?

A loosely defined set of technologies developed by Microsoft for sharing information among different applications. ActiveX is an outgrowth of two other Microsoft technologies called *OLE (Object Linking and Embedding)* and *COM (Component Object Model)*. As a moniker, *ActiveX* can be very confusing because it applies to a whole set of COM-based technologies. Most people, however, think only of ActiveX controls, which represent a specific way of implementing ActiveX technologies.

### 34. Write a note on ActiveX controls.

A control using ActiveX technologies. An ActiveX control can be automatically downloaded and executed by a Web browser. ActiveX is not a programming language, but rather a set of rules for how applications should share information. Programmers can develop ActiveX controls in a variety of languages, including C, C++, Visual Basic, and Java.

An ActiveX control is similar to a Java applet. Unlike Java applets, however, ActiveX controls have full access to the Windows operating system. This gives them much more power than Java applets, but with this power comes a certain risk that the applet may damage software or data on your machine. To control this risk, Microsoft developed a registration system so that browsers can identify and authenticate an ActiveX control before downloading it. Another difference between Java applets and ActiveX controls is that Java applets can be written to run on all platforms, whereas ActiveX controls are currently limited to Windows environments. Related to ActiveX is the scripting language *VBScript* that enables Web authors to embed interactive elements in HTML documents.

35. Explain about HTTP Connection.

It is a communication channel between web browser and web server. It begins on the client side with the browser sending a request to the web server for a document.

Request Header Fields are

1. From
2. Reference
3. If\_modified\_since
4. Pragma
5. User Agent

36. What is meant by Stateless Connection?

When a web server receives a HTTP request from a web browser it evaluates the request and returns the requested document, if it exists, and then breaks the HTTP connection. This document is preceded by the response header, which has details about how to display the document that will be sent by the server. Each time a request is made to the server, it is as if there was no prior connection and each request can yield only a single document. This is known as Stateless Connection.

37. Write a note on Environment variables.

In CGI, the server prepares the environment variables before it launches the CGI script. These represent the current state of the server that is asking for the information. The environment variables are not set from the command line but are created on the fly, and lasts only until that particular script is finished. Each script gets its own unique set of variables and multiple scripts can be executed at once, each in its own environment.

38. What are STDIN and STDOUT?

These are mnemonics for standard input and standard output, two predefined stream / file handles. Each process already inherits these two handles already open. From the script's point of view, STDIN is what comes from the browser via the server when the post method is used, and the STDOUT is where it writes its output back to the browser. The script picks up the environment variables and reads STDIN as appropriate. It then does whatever it was designed to do and writes its output to STDOUT.

39. What are the two commonly used Request methods?

The request methods tell the script how it was invoked. Based on this information, the script decides how to act. The request method is passed to the script using environment variable called REQUEST- METHOD. The two most common request methods used are GET and POST.

**GET**

GET is a request for data, the same method used for obtaining static documents. The GET method sends request information as parameter tacked onto the end of the URL. These parameters are passed to the CGI program in the environment variable QUERY-STRING.

**E.g.:** If the script is called myprog.exe and is invoked from a link with the form  
<A HREF="cgi-bin/myprog.exe? lname=blow&fname=joe"> The REQUEST\_METHOD will be the string GET, and the QUERY\_STRING will contain lname=blow & fname=joe.

A mandatory question mark separates the name of the script from the beginning of the **QUERY\_STRING**. If a slash is used instead of the question mark; the server passes the information to script using the **PATH\_INFO** variable instead of the **QUERY\_STRING** variable.

## **POST**

POST operation occurs when the browser sends data from a fill-in form to the server. With POST, the **QUERY\_STRING** may or may not be blank, depending on the server.

The data from a POSTed query gets passed from the server to the script using **STDIN**. Because **STDIN** is a stream and the script needs to know how much valid data is waiting, the server also supplies another variable, **CONTENT\_LENGTH**, to indicate the size in bytes of the incoming "data". The format for POSTed data is

Variable1=value1 & variable2=value2 &etc.

After the required data is available, the script executes and writes its output to the **STDOUT**. The MIME code that the server sends to the browser indicates the type of the file that is being sent. This information that precedes the file is usually called the *header*. Since the script generates the output on the fly the server will not be able to create a header for that information. Hence this information has to be supplied by the script itself. Failure will result in the browser receiving information that it does not know how to display.

### 40. Explain about URL Encoding.

HTTP specification requires that the URL data should be encoded in such a way that it can be used on almost any hardware and software platforms. Information specified in this way is called *URL encoded*. If parameters are passed as a part of query string or path information, they will take the form of 'Name-Value' pairs.

variable1=value1&variable2=value2& so on for each variable defined in the form.

The variables or name value pairs are separated by '&'. Real ampersand is escaped -that is, encoded as a two-digit hexadecimal value representing the character. Escaped characters are indicated in URL-encoded string by the percent (%) sign. Blank spaces are replaced by '+' sign.

Before the script can deal with the data it has to parse and decode it. The script scans through the string looking for an ampersand. When it is found the string is broken from that point. The variable's name is every thing up to the equal sign in the string and the value is every thing after the equal sign. The script continues to parse the original string for the next ampersand, and so on until the original string is exhausted. After the variables are separated, they are decoded as follows.

1. Replace all plus signs with blank spaces.
2. Replace all %## (Percent sign followed by two hexadecimal digits) with the corresponding ASCII character.

Separate the name-value pairs from the URL and store the values separately.

### 41. List the advantages of CGI scripting?

1. CGI programs are relatively safe to run.
2. A CGI program can crash without damaging the server, since it only has limited access to the server.

3. Reduces the burden of server
  - a. Sends prepared messages / mails e customer reply
  - b. Capability to process forms and prepares output based on form input.
  - c. Hit counts / Page counters.

42. Explain about Session tracking.

A session is basically a conversation between a browser and a server. All the above technologies can save information for the current session for a particular user visiting a site. The session is important, as HTTP is a stateless protocol. This means that the connection between web server and a web browser is not automatically maintained, and that the state of a web session is not saved.

State is a general term that includes "everything about your situation" and the specifics vary based on the application. In a word processor, the state of the application would include which windows are open, where they are on the screen, and what files you most recently used. In a web application, the state would include any data that you had entered, the results of any queries that you had run, and your security access information (e.g. whether you have logged in to the site).

43. Define packet switched networks.

Packet switched network means that data traveling on the network is broken into chunks called packets and each packet is handled separately.

44. Define socket.

The socket is a software abstraction used to represent the terminals of a connection between two machines or processes.

45. What are the basic operations of client sockets?

Connect to a remote machine

Send data

Receive data

Close a connection

46. What are the basic operations of Server socket?

Bind to a port

Listen for incoming data

Accept connections from remote machines on the bound port

47. List all the socket classes in java.

Socket

ServerSocket



Datagram Socket  
Multicast Socket  
Secure sockets

48. What the Socket Object does?

Socket object is the java representation of a TCP connection when a socket is created; a connection is opened to the specified destination.

49. What is meant by Server Socket?

ServerSocket represents a listening TCP connection. Once an incoming connection is requested, the ServerSocket object will return a Socket object representing the connection.

50. What do you mean by DatagramSocket and DatagramPacket?

DatagramSocket represents a connectionless datagram socket. This class works with the DatagramPacket class to provide for communication using the UDP protocol.

51. Write a note on Connect Exception.

This exception is raised when a connection is refused at the remote host. (ie, no process is listening on that port).

52. What is a multicast socket?

Multicasting sends data from one host to many different hosts, which are in the multicast group.

53. What is multicast address and the range of address?

A multicast address is the address of a group of hosts called a multicast group. Multicast addresses are IP addresses in the range 224.0.0.0 to 239.255.255.255

54. What are the different types of IP addresses?

Unicast address: It is used for transmitting a message to single destination node

Multicast address: It delivers a message to a group of destination nodes, which are necessarily in the same sub network.

Broadcast address: It transmits a message to all nodes in a sub network.

55. What is meant by protocol handler?

Protocol handlers are used to retrieve the web objects using application specific protocols. The protocols are specified in the URL referencing the object.

56. How are the protocol handlers implemented?

Four different classes in the java.net package implement the protocol handlers:

1. URL

2. URLStreamHandler
3. URLConnection
4. URLStreamHandlerFactory

57. What are the methods for parsing URLs?

1. parseURL(URL u, String spec, int start, int limit)- splits the URL into parts
2. setURL(URL u, String protocol, String host, int port, String file, String ref) -assigns values to the URL's fields.

58. What is content handler?

Content handlers are used to retrieve objects via an URLConnection object.

59. What is Remote Method Invocation?

The Remote Method Invocation is application-programming interface that allows java objects on different hosts communicate with each other.

60. What do you mean by remote object?

Objects that have methods that can be called across virtual machines are remote objects.

61. Define serialization.

It is the process of converting a set of object instances that contain references to each other into a linear stream of bytes, which can then be through a socket. It is the mechanism used by RMI to pass objects between Java Virtual Machines.

62. What are the responsibilities of stub?

A stub for a remote object is the client side proxy for the remote object. A client side stub is responsible for:

1. Initiating a call to the remote object
2. Marshaling arguments to a marshal stream
3. Informing the remote reference layer that the call should be invoked
4. Unmarshaling the return value or exception from a marshal stream

63. What is the role of skeleton in RMI?

A skeleton for a remote object is a server side entity that contains a method which dispatches calls to the actual remote object implementation. The skeleton is responsible for

1. Unmarshaling arguments from the marshal stream.
2. Making the up-call to the actual remote object.
3. Marshalling the return value of the call to an exception onto the Marshall stream

64. List down the layers of RMI architecture.

1. Stubs/Skeletons

2.Remote reference layer

3.Transport layer

65. Define Object Activation.

Object Activation is mechanism, which allows a java object to be bound and then activated at some later date simply by referencing the object through the Registry.

66. Write down the Socket object methods to get information about a socket.

1. getInetAddress ()- displays which remote host the Socket is connected to
2. getPort () -displays which port the Socket is connected to on the remote host.
3. getLocalPort ()- to find the port number for the local end of a connection
4. getLocalAddress () -tells you which network interface a socket is bound to.

67. What operations Multicast Socket Perform?

1. Join a multicast group
2. Send data to the members of the group
3. Receive data from the group
4. Leave the multicast group

68. What are Style Sheets?

Style sheets are collections of style information that are applied to plain text. Style information includes font attributes such as type size, special effects (bold,italic,underline), color and alignment. Style sheets also provide broader formatting instructions by specifying values for quantities such as line spacing and left and right margins.

69. List down the ways of including style information in a document.

- 1.Linked Styles -Style information is read from a separate file that is specified in the <LINK> tag
- 2.Embedded Styles -Style information is defined in the document head using the <STYLE> and </STYLE> tags.
- 3.Inline Styles -Style information is placed inside an HTML tag and applies to all content between that tag and its companion closing tag.

70. Define cascading.

Cascading refers to a certain set of rules that browsers use, in cascading order, to determine how to use the style information. Such a set of rules is useful in the event of conflicting style information because the rules would give the browser a way to determine which style is given precedence.

71. What are the style precedence rules when using multiple approaches?

Inline styles override both linked style sheets and style information stored in the document head with <STYLE> tag.

Styles defined in the document head override linked style sheets.  
Linked style sheets override browser defaults.

72. Give the syntax to specify a characteristic in linked style sheet.

{Characteristic: value}

Multiple characteristic/value pairs should be separated by semicolons.

73. List down font characteristics permitted in style sheets.

- 1.font-family
- 2.font-size
- 3.font-weight
- 4.font-style
- 5.font-variant

74. Write a note on content positioning characteristic "Visibility".

Enables the document author to selectively display or conceal positioned content; Possible values are show or hide.

75. Define XML.

XML is a meta-markup language that provides a format for describing structured data. This facilitates more structured declarations of content and more meaningful search results across multiple platforms.

76. Define DTD.

A DTD is a set of rules that specifies how to use XML markup. It contains specifications for each element, including what the element's attributes are, what values the attributes can take on and what elements can be contained in others.

77. What are the XML rules for distinguishing between the content of a document and the XML markup element?

- 1.The start of XML markup elements is identified by either the less than symbol (<) or the ampersand (&) character
- 2.Three other characters, the greater than symbol (>), the apostrophe or single quote (') and the double quotation marks (") are used by XML for markup.
- 3.To use these special characters as content within your document, you must use the corresponding general XML entity.

78. Define scriptlets.

Scriptlets enable you to create small, reusable web applications that can be used in any web page. Scriptlets are created using HTML, scripting and Dynamic HTML. To include them in an HTML document use the <OBJECT> tag.

79. Define ASP.

Active Server Pages (ASP) is a server-side scripting technology that can be used to create dynamic and interactive web applications.

80. What are the ASP objects?

- 1.Application -It manages your web application.
- 2.Session -It manages and tracks individual user sessions.
- 3.Server -It controls behavior of your web server
- 4.Response -It transmits information from the web server to web browser
- 5.Request -It retrieves information from the browser for processing at the server.

81. What is global.asa file?

The global.asa file is a Active Server Application file you can track and manage the application and session events, variables and objects. When you start the application the server will load the global.asa file into memory.

82. Define response object and list its methods.

The response object transmits information from the web server to browser.

Methods are:

- 1.Write
- 2.BinaryWrite
- 3.Redirect
- 4.AppendToLog
- 5.AddHeader
- 6.Clear
- 7.Flush

83. Define JSP.

Java Server Pages (JSP) are simple technology used to generate dynamic HTML on the server side.

84. Define Directives.

Directives are JSP elements that provide global information about an entire JSP page,

85. Write down the various attributes for the page directives in JSP.

The page directive defines information that will be globally available for that Java Server Page,

1. language
2. extends

3. import
4. session
5. buffer
6. contenttype

86. What is meant by firewall?

A firewall is a piece of network hardware that serves as a secure gateway between an internal network and the Internet. It protects the internal network from unauthorized access or activity,

87. Write a note on proxy server.

A proxy server is a host that makes Internet request on behalf of other machines on the network, Proxy servers are often used to cache frequently requested files or to monitor Internet use within a Corporation.

88. What does DHTML refer?

DHTML refers to collection of technologies, which makes HTML documents more dynamic and interactive.

89. Define SSI.

Server Side Includes (SSI) gives you a way to insert the content of another file into a file before the web server processes it.

90. What does data binding mean?

Data binding is DHTML feature that lets you easily bind individual elements in your document to data from another source such as database or comma delimited text file.

91. What is meant by Plug-in?

A hardware or software module that adds a specific feature or service to a larger system. The idea is that the new component simply *plugs in* to the existing system. For example, there are number of plug-ins for the Netscape Navigator browser that enable it to display different types of audio or video messages. Navigator plug-ins are based on MIME file types.

92. What do you mean by JDBC?

JDBC Part of the Java Development Kit which defines an application-programming interface for Java for standard SQL access to databases from Java programs.

93. Define ODBC.

It is a standard for accessing different database systems. There are interfaces for Visual Basic, Visual C++, SQL and the ODBC driver pack contains drivers for the Access, Paradox, dBase, Text, Excel and Btrieve databases.

94. List any two keyboard events?

1. onKeyPress
2. onKeyUp
3. onKeyDown

95. List any two mouse events?

1. onMouseUp
2. onMouseDown
3. onMouseOver
4. onClick

96. Define virtual organization.

The virtual organization is defined as being closely coupled upstream with its suppliers and downstream with its customers such that where one begins and the other ends means little to those who manage the business processes within the entire organization.

97. List the major approaches to form virtual organization?

1. Downward networking: a large, vertically integrated company seeking to reduce its overhead by outsourcing initiates it
2. Lateral Approach: It is observed in small, specialized firms that in the interest of seeking strategic alliances, form partnerships along a value-added chain.

98. What do mean by search engine?

It is a program or web page that enables you to search an Internet site for a specific keywords or words.

99. List the features of online shopping.

1. Make it easy for you to browse and purchase as much as possible from their websites.
2. Products displayed from the online store are associated with links to detailed descriptions of the products
3. You are able to compare the product to similar products based on the features and pricing.
4. It also brings you to the web sites of the product manufacturer for more information.
5. Shopping sites want you to have a personal account created before you shop their site. The account typically provides the business with your name, address, e-mail, phone number and possibly credit card numbers.
6. Some online shopping sites offer free samples. For example, online music stores sometime have audio samplings of the CDs they sell

100. How do search engine work?

When you enter a keyword, the search engine examines its online database and presents to you a listing of sites that, in theory, match your search criteria.