

IT8501-WEB TECHNOLOGY

UNIT – 1

PART - A

1. Write the format of html program

```
<HTML>
<HEAD>
<TITLE> This is the Title </TITLE>
</HEAD>
<BODY>
.... Type the body of the program
</BODY>
</HTML>
```

Note: All the tags in HTML program are optional, however the file should be saved in .html extension.

2. Mention some text formatting tags

<p> </p> - is used for introducing various paragraphs.

 - this tag is used for giving an empty blank line.
 HEADING TAGS - <h1> </h1> .. <h6> </h6> is used to introduce various headings.
 <h1> is the biggest and h6 is the smallest heading tag.
 <HR> TAG – is used to draw lines and horizontal rules.
 , <I>, <U> for bold, italic and underline respectively.

3. What are the different types of LIST Tags.

TYPES OF LISTS

Unordered lists
 Ordered lists

4. Mention the different types of links

HTML allows linking to other HTML documents as well as images. There are 3 attributes that can be introduced in BODY tag.

LINK – Changes the default color of a Hyperlink to whatever color is specified with this tag.
 ALINK – Changes the default color of a hyperlink that is activated to whatever color is specified with this tag.
 VLINK – Changes the default color of a hyperlink that is already visited to whatever color is specified with this tag.

NOTE: User can specify the color name of a hyperlink or an equivalent hexadecimal number.

EXTERNAL LINKS

SYNTAX

```
<A HREF = “location name”> Hyper Text Message </A>
```

5. Explain image maps with its syntax

When a hyperlink is created on an image, clicking on any part of the image will lead to opening of the document specified in the <A HREF TAG>. Linked regions of an image map are called hot regions and each hot region is associated with a filename.html.

Syntax

```
<MAP NAME = “map name”>
```

ATTRIBUTES OF IMAGE MAPS

COORDS: Each of the above shapes takes different coordinates as parameters.

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Rectangle – 4 coordinates (x1,y2,x3,y2)

POLYGON: 3 or more coordinates.

HREF – Takes the name of the .html file that is linked to the particular area on the image.

```
<MAP NAME = "fish.jpg">
```

```
<AREA SHAPE = "rect" COORDS = "52,65,122,89" HREF = "sct.html">
```

```
</MAP>
```

6. Mention the various form elements.

Various elements or controls can be created in FORM using <INPUT> tag. They are 1. Label 2. Text box 3. Text Area 4. Radio button 5. Check box 6. List box 7. Command button 8. Scroll bars

7. What is HTML?

Hyper Text Markup Language. This is a file format, based on SGML, for hypertext documents on the Internet. It is very simple and allows for the embedding of images, sounds, video streams, form fields and simple text formatting. References to other objects are embedded using URLs. HTML is a plain text file with commands <markup tags> to tell the Web browsers how to display the file.

8. How do you change the color of background or text in HTML?

Include the element \"bgcolor\" with a color code in your body tag:

```
<BODY BGCOLOR=\"#ffffff\" TEXT=\"#000000\" LINK=\"#cc0000\"  
VLINK=\"#000066\" ALINK=\"#ffff00\">
```

9. How do you use a picture as the background in HTML?

Include the element \"background\" with the name of the graphics file:

```
<BODY BACKGROUND=\"gumby.gif\" BGCOLOR=\"#ffffff\" TEXT=\"#000000\"  
LINK=\"#cc0000\" VLINK=\"#000066\" ALINK=\"#ffff00\">
```

10. How do you add music to a web page?

```
<A HREF=\"http://www.snowhawk.com/sounds/hvnearth.mid\">Heaven on Earth</A>
```

11. How do you align text next to a graphic in HTML?

```
<IMG SRC=\"wflower.jpg\" WIDTH=\"25\" HEIGHT=\"25\" ALIGN=\"top\"  
BORDER=\"0\" ALT=\"wildflower photo\"> Photo of wildflowers in Texas</A>
```

12. How do you make a graphic a link?

```
<AHREF=\"http://www.snowhawk.com/wildlife.html\"><IMG SRC=\"leopard.jpg\"  
WIDTH=\"25\" HEIGHT=\"25\" ALIGN=\"top\" BORDER=\"0\" ALT=\"link to  
wildlife\"></A>
```

13. How do you make a new paragraph in HTML?

Inserting the <P> tag at the beginning of your paragraph will drop the text down two lines. (If you insert the
 tag, it will drop your text down one line.)

14. How do you make headings and text larger or smaller?

There are 6 sizes to the heading tags:

This is using the <H1> tag

This is using the <H2> tag

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This is using the <H3> tag

This is using the <H4> tag

This is using the <H5> tag

This is using the <H6> tag

15. How do you make text show as bold?

Placing the tag before the text will make everything bold, until you close the tag with (Or using tags will do the same.)

16. How do I make text show in italics?

Placing the <I>tag before the text will make everything in italics, until you close the tag with</I> (Using emphasis tags will do the same.)

17. How would you make all text on a page green and a little larger than normal, but make all headings yellow?

Put the following at the beginning of the Web page:

```
<BODY TEXT="green"><BASEFONT SIZE=4>
```

Then make each heading look like this:

```
<H1><FONT COLOR="Yellow">Heading goes here </FONT></H1>
```

18. Write the HTML to create the following ordered list.

X. Xylophone

Y. Yak

Z. Zebra

```
<OL TYPE ="A" START = "24">
```

```
<LI> Xylophone
```

```
<LI>YAK
```

```
<LI>Zebra
```

```
</OL>
```

The following alternative will also do the same things.

```
<OL TYPE ="A"<LI VALUE ="24">Xylophone<LI>Yak<LI>Zebra</OL>
```

19. How would you insert a single word and put a square bullet in front of it?

```
<UL TYPE="Square"><LI>Web Technology</UL>
```

20. How would you insert an image file named elephant.jpg at the very top of a Web page?

Copy the image file into the same directory folder as the HTML text file and type immediately after the <BODY> tag in the HTML text file

21. How would you give a Web page a black background and make all text, including links, bright green?

Put the following at the beginning of the Web page:

```
<BODY BGCOLOR="black">
```

The following would do the same thing"

```
<BODY BGCOLOR ="#000000"
```

```
TEXT="#00FF00" LINK="00FF00" VLINK="#000000">
```

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22. How would you make an image file named texture.jpg appear as a background tile?

```
<BODY BACKGROUND="texture.jpg"
TEXT="White" LINK="red" VLINK="blue" ALINK="black">
```

23. How would you wrap text around the right side of an image, leaving 40 pixels of space between the image and the text?

```
<IMG SRC="myimage.gif" HSPACE=40 VSPACE=40 ALIGN="left">Text goes here
```

24. How could you insert exactly 80 pixels of blank space between two paragraphs of text?

Create a small image that is all one color, and save it as nothing.gif with that color set to be transparent. Then put the following tag between the two paragraphs of text:

```
<IMG SRC="nothing.gif" WIDTH=1 HEIGHT=80>
```

25. How would you write the HTML to draw a rule 20 pixels wide?

```
<HR WIDTH=20>
```

26. If you have a circular button that links to another page, how do you prevent a rectangle from appearing around it?

Use the BORDER=0 attribute, like this:

```
<A HREF="another_page.htm"><IMG SRC="circle.gif" BORDER=0></A>
```

27. Mention the advantages of java script

- a. Use sending data continuously File storage Massively parallel computing
- b. Smart forms – includes various controls like text box, radio button, text
- c. area control etc.
- d. Peer-to-Peer Interaction – used in various client/server model.
- e. Games – Combine the ability to easily include networking in your programs with java's powerful graphics and you have the recipe for truly awesome multiplayer games.
Chat – Used in various chat applications.
- f. Whiteboards – Java programs are not limited to sending ext and data
- g. across the network.
- h. A number of programmers have developed whiteboard software that allows users in diverse locations to draw on their computers

28. 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.

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

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

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30. 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.

31. Define scriptlet.

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.

32. List the advantages of java script

JavaScript is an object-oriented language that allows creation of interactive Web pages JavaScript allows user entries, which are loaded into an HTML form to be processed as required

33. List the various dialog boxes in java script

Dialog boxes are used to display small windows. This is also used to get input from user.

34. Mention the various java script object models .

- Math Object
- String Object
- Date Object
- Boolean and Number Object
- Document Object
- Window Object

35. How scripting language is differs from html.

- HTML is used for simple web page design
- HTML with FORM is used for both form design and Reading input values from user.
- Scripting Language is used for Validating the given input values weather it is correct or not, if the input value is incorrect, the user can pass an error message to the user.
- Using form concept various controls like Text box, Radio Button, Command Button, Text Area control and List box can be created.

36. Define function in java script .

Function is a part of a program or in other words function is a module in java program which can be called or invoked any number of times from the main program.

Function can be called any number of times but it can accept any input values or parameters, however it can return only one output at a time.

37. Define cascading style sheets (css)

- CSS are powerful mechanism for adding styles (e.g. Fonts, Colors, Spacing) to web documents.
- They enforce standards and uniformity throughout a web site and provide numerous attributes to create dynamic effects.
- The advantage of a style sheet includes the ability to make global changes to all documents from a single location. Style sheets are said to cascade when they combine to specify the appearance of a page.

The style assignment process is accomplished with the <STYLE>...</STYLE> tags.

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38. Mention the types of style sheets

- 1 Embedded or Internal Style sheet
- 2 External or Linked Style sheet
- 3 Inline style sheet

39. How to introduce style in html program?

```

<HTML>
<HEAD>
<STYLE Type = "text/css">
predefined tag name {attribute name1:attribute value1; attribute name2:attribute
value2; .....attribute name-n:attribute value-n}
</STYLE>
</HEAD>
<BODY>
write the body of program
</BODY> </HTML>

```

40. List down font characteristics permitted in style sheets.

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

PART B

1. Design a web page that allows the user to choose from a series of images and to view the image in color and grayscale.
2. How to create user interactive web pages using form objects and form elements?
- 3.. What are the necessities of using HTML forms? What is the use of HTML Forms? Create a HTML Form page for Railway Registration Form.
4. How to create user interactive web pages using Form elements and Form objects? Develop an Student registration form using HTML Form elements. (Assume your own fields).
5. Explain the document object model architecture
6. Explain the various event handlers in java script. Give an example.
7. Write a java script program to develop the arithmetic calculator
8. What are the various java script objects? Explain each with an example.
9. Explain about types of cascading style sheet? Explain with example
10. Discuss briefly Dynamic HTML – Event Model
- 11 Explain Event bubbling with an example program
12. Write a JavaScript to display a welcome button of an html form is pressed
13. Write a JavaScript program to demonstrate the JavaScript events.
14. Design a webpage with a textbox where the user can enter a four digit number and a button “validate” . Validate the entered number for the following using java script. No zero as the first digit Entered number must be in ascending order of digits (Ex:1234,5678...)
15. Write the complete JavaScript to prompt the user for the radius of the sphere and call function sphere Volume to calculate and display the volume of the sphere. Use the statement. $Volume=(4.0/3.0)*Math.PI*Math.pow(radius,3)$
16. To calculate the volume, the user should input the radius through an HTML text field and press an HTML button to initiate the calculations.

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17. What are the objectives of using Cascading style sheet? Briefly explain about linking of external Style sheets and fixing the backgrounds.
18. Explain the concept of CSS and its properties and its uses with an example.
19. Using a JavaScript create a web page using two image files , which switch between one another as the mouse pointer moves over the images.
20. Explain about cascading style sheets in detail.
 - i. Style sheet rules
 - ii. Styling a page
 - iii. Linking style sheets
 - iv. Inline style sheets.
21. Write a XHTML program to create a web page for your college information using any one CSS type (Assume your own data) .Explain the various CSS properties in detail. Write a suitable code each property.
22. Develop a JavaScript program to display a message “HI ! GOOD MORNING TO YOU” when a page is loaded and display a message “THANKS TO VISIT OUR WEB PAGE” when a page is unloaded.
23. Design a web page with a text box (username) where the user can enter a name and another text box (ID) where the user enter an only four digit ID.NO and a button “validate”. Validate the entered username and ID field for the following using java script.
 - i. Both the fields should not be empty
 - ii. Name field should have alphabets
 - iii. ID field should have numeric.
24. Write a Java Script to print the smallest number in an array of ‘N’ numbers.

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UNIT - II

PART - A

1. What is JVM ? Why is Java called the “Platform Independent Programming Language” ?

A Java virtual machine (JVM) is a process virtual machine that can execute Java bytecode. Each Java source file is compiled into a bytecode file, which is executed by the JVM.

Java was designed to allow application programs to be built that could be run on any platform, without having to be rewritten or recompiled by the programmer for each separate platform. A Java virtual machine makes this possible, because it is aware of the specific instruction lengths and other particularities of the underlying hardware platform.

2. What is the Difference between JDK and JRE ?

The Java Runtime Environment (JRE) is basically the Java Virtual Machine (JVM) where your Java programs are being executed. It also includes browser plugins for applet execution. The Java Development Kit (JDK) is the full featured Software Development Kit for Java, including the JRE, the compilers and tools (like JavaDoc, and Java Debugger), in order for a user to develop, compile and execute Java applications.

3. What does the “static” keyword mean ? Can you override private or static method in Java ?

The static keyword denotes that a member variable or method can be accessed, without requiring an instantiation of the class to which it belongs.

A user cannot override static methods in Java, because method overriding is based upon dynamic binding at runtime and static methods are statically binded at compile time. A static method is not associated with any instance of a class so the concept is not applicable.

4. Can you access non static variable in static context ?

A static variable in Java belongs to its class and its value remains the same for all its instances. A static variable is initialized when the class is loaded by the JVM. If your code tries to access a non-static variable, without any instance, the compiler will complain, because those variables are not created yet and they are not associated with any instance.

5. What are the Data Types supported by Java ? What is Autoboxing and Unboxing ?

The eight primitive data types supported by the Java programming language are:

- byte
- short
- int
- long
- float
- double
- boolean
- char

Autoboxing is the automatic conversion made by the Java compiler between the primitive types and their corresponding object wrapper classes. For example, the compiler converts an int to an Integer, a double to a Double, and so on. If the conversion goes the other way, this operation is called unboxing.

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6. What is Function Overriding and Overloading in Java ?

Method overloading in Java occurs when two or more methods in the same class have the exact same name, but different parameters. On the other hand, method overriding is defined as the case when a child class redefines the same method as a parent class. Overridden methods must have the same name, argument list, and return type. The overriding method may not limit the access of the method it overrides.

7. What is a Constructor, Constructor Overloading in Java and Copy-Constructor ?

A constructor gets invoked when a new object is created. Every class has a constructor. In case the programmer does not provide a constructor for a class, the Java compiler (Javac) creates a default constructor for that class.

The constructor overloading is similar to method overloading in Java. Different constructors can be created for a single class. Each constructor must have its own unique parameter list.

Finally, Java does support copy constructors like C++, but the difference lies in the fact that Java doesn't create a default copy constructor if you don't write your own.

8. Does Java support multiple inheritance ?

No, Java does not support multiple inheritance. Each class is able to extend only on one class, but is able to implement more than one interfaces.

9. What is the difference between an Interface and an Abstract class ?

Java provides and supports the creation both of abstract classes and interfaces. Both implementations share some common characteristics, but they differ in the following features:

- All methods in an interface are implicitly abstract. On the other hand, an abstract class may contain both abstract and non-abstract methods.
- A class may implement a number of Interfaces, but can extend only one abstract class.
- In order for a class to implement an interface, it must implement all its declared methods. However, a class may not implement all declared methods of an abstract class. Though, in this case, the sub-class must also be declared as abstract.
- Abstract classes can implement interfaces without even providing the implementation of interface methods.
- Variables declared in a Java interface is by default final. An abstract class may contain non-final variables.
- Members of a Java interface are public by default. A member of an abstract class can either be private, protected or public.
- An interface is absolutely abstract and cannot be instantiated. An abstract class also cannot be instantiated, but can be invoked if it contains a main method.

Also check out the Abstract class and Interface differences for JDK 8.

10. What are pass by reference and pass by value ?

When an object is passed by value, this means that a copy of the object is passed. Thus, even if changes are made to that object, it doesn't affect the original value.

When an object is passed by reference, this means that the actual object is not passed, rather a reference of the object is passed. Thus, any changes made by the external method, are also reflected in all places.

11. What is the difference between processes and threads ?

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A process is an execution of a program, while a Thread is a single execution sequence within a process. A process can contain multiple threads. A Thread is sometimes called a lightweight process.

12. Explain different ways of creating a thread. Which one would you prefer and why ?

There are three ways that can be used in order for a Thread to be created:

- A class may extend the Thread class.
- A class may implement the Runnable interface.
- An application can use the Executor framework, in order to create a thread pool.

The Runnable interface is preferred, as it does not require an object to inherit the Thread class. In case your application design requires multiple inheritance, only interfaces can help you. Also, the thread pool is very efficient and can be implemented and used very easily.

13. Explain the available thread states in a high-level.

During its execution, a thread can reside in one of the following states:

- Runnable: A thread becomes ready to run, but does not necessarily start running immediately.
- Running: The processor is actively executing the thread code.
- Waiting: A thread is in a blocked state waiting for some external processing to finish.
- Sleeping: The thread is forced to sleep.
- Blocked on I/O: Waiting for an I/O operation to complete.
- Blocked on Synchronization: Waiting to acquire a lock.
- Dead: The thread has finished its execution.

14. What is the difference between a synchronized method and a synchronized block ?

In Java programming, each object has a lock. A thread can acquire the lock for an object by using the synchronized keyword. The synchronized keyword can be applied in a method level (coarse grained lock) or block level of code (fine grained lock).

15. How does thread synchronization occurs inside a monitor ? What levels of synchronization can you apply ?

The JVM uses locks in conjunction with monitors. A monitor is basically a guardian that watches over a sequence of synchronized code and ensuring that only one thread at a time executes a synchronized piece of code. Each monitor is associated with an object reference. The thread is not allowed to execute the code until it obtains the lock.

16. What's a deadlock ?

A condition that occurs when two processes are waiting for each other to complete, before proceeding. The result is that both processes wait endlessly.

17. How do you ensure that N threads can access N resources without deadlock?

A very simple way to avoid deadlock while using N threads is to impose an ordering on the locks and force each thread to follow that ordering. Thus, if all threads lock and unlock the mutexes in the same order, no deadlocks can arise.

18) Explain different way of using thread?

The thread could be implemented by using runnable interface or by inheriting from the Thread class. The former is more advantageous, 'cause when you are going for multiple inheritance..the only interface can help.

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19) What are the different states of a thread ?

The different thread states are ready, running, waiting and dead.

20) Why are there separate wait and sleep methods?

The static Thread.sleep(long) method maintains control of thread execution but delays the next action until the sleep time expires. The wait method gives up control over thread execution indefinitely so that other threads can run.

21) What is multithreading and what are the methods for inter-thread communication and what is the class in which these methods are defined?

Multithreading is the mechanism in which more than one thread run independent of each other within the process. wait (), notify () and notifyAll() methods can be used for inter-thread communication and these methods are in Object class. wait() : When a thread executes a call to wait() method, it surrenders the object lock and enters into a waiting state. notify() or notifyAll() : To remove a thread from the waiting state, some other thread must make a call to notify() or notifyAll() method on the same object.

22) What is synchronization and why is it important?

With respect to multithreading, synchronization is the capability to control the access of multiple threads to shared resources. Without synchronization, it is possible for one thread to modify a shared object while another thread is in the process of using or updating that object's value. This often leads to significant errors.

23) How does multithreading take place on a computer with a single CPU?

The operating system's task scheduler allocates execution time to multiple tasks. By quickly switching between executing tasks, it creates the impression that tasks execute sequentially.

24) What is the difference between process and thread?

Process is a program in execution whereas thread is a separate path of execution in a program.

25) What happens when you invoke a thread's interrupt method while it is sleeping or waiting?

When a task's interrupt() method is executed, the task enters the ready state. The next time the task enters the running state, an InterruptedException is thrown.

26) How can we create a thread?

A thread can be created by extending Thread class or by implementing Runnable interface. Then we need to override the method public void run().

27) What are three ways in which a thread can enter the waiting state?

A thread can enter the waiting state by invoking its sleep() method, by blocking on I/O, by unsuccessfully attempting to acquire an object's lock, or by invoking an object's wait() method. It can also enter the waiting state by invoking its (deprecated) suspend() method.

28) How can i tell what state a thread is in ?

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Prior to Java 5, `isAlive()` was commonly used to test a thread's state. If `isAlive()` returned false the thread was either new or terminated but there was simply no way to differentiate between the two.

29) What is synchronized keyword? In what situations you will use it?

Synchronization is the act of serializing access to critical sections of code. We will use this keyword when we expect multiple threads to access/modify the same data. To understand synchronization we need to look into thread execution manner.

30) What is serialization?

Serialization is the process of writing complete state of java object into output stream, that stream can be file or byte array or stream associated with TCP/IP socket.

31) What does the Serializable interface do?

Serializable is a tagging interface; it prescribes no methods. It serves to assign the Serializable data type to the tagged class and to identify the class as one which the developer has designed for persistence. `ObjectOutputStream` serializes only those objects which implement this interface.

32) When you will synchronize a piece of your code?

When you expect your code will be accessed by different threads and these threads may change a particular data causing data corruption.

33) What is daemon thread and which method is used to create the daemon thread?

Daemon thread is a low priority thread which runs intermittently in the background doing the garbage collection operation for the java runtime system. `setDaemon` method is used to create a daemon thread.

34) What is the difference between yielding and sleeping?

When a task invokes its `yield()` method, it returns to the ready state. When a task invokes its `sleep()` method, it returns to the waiting state.

35) What is casting?

There are two types of casting, casting between primitive numeric types and casting between object references. Casting between numeric types is used to convert larger values, such as double values, to smaller values, such as byte values. Casting between object references is used to refer to an object by a compatible class, interface, or array type reference.

36) What classes of exceptions may be thrown by a throw statement?

A throw statement may throw any expression that may be assigned to the Throwable type.

37) A Thread is runnable, how does that work?

The Thread class' run method normally invokes the run method of the Runnable type it is passed in its constructor. However, it is possible to override the thread's run method with your own.

38) Can I implement my own start() method?

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The Thread start() method is not marked final, but should not be overridden. This method contains the code that creates a new executable thread and is very specialised. Your threaded application should either pass a Runnable type to a new Thread, or extend Thread and override the run() method.

39) Do I need to use synchronized on setValue(int)?

It depends whether the method affects method local variables, class static or instance variables. If only method local variables are changed, the value is said to be confined by the method and is not prone to threading issues.

40) What is thread priority?

Thread Priority is an integer value that identifies the relative order in which it should be executed with respect to others. The thread priority values ranging from 1- 10 and the default value is 5. But if a thread have higher priority doesn't means that it will execute first. The thread scheduling depends on the OS.

41) What are the different ways in which a thread can enter into waiting state?

There are three ways for a thread to enter into waiting state. By invoking its sleep() method, by blocking on I/O, by unsuccessfully attempting to acquire an object's lock, or by invoking an object's wait() method.

42) How would you implement a thread pool?

The ThreadPool class is a generic implementation of a thread pool, which takes the following input Size of the pool to be constructed and name of the class which implements Runnable (which has a visible default constructor) and constructs a thread pool with active threads that are waiting for activation. once the threads have finished processing they come back and wait once again in the pool.

43) What is a thread group?

A thread group is a data structure that controls the state of collection of thread as a whole managed by the particular runtime environment.

44. What are the two types of Exceptions in Java ? Which are the differences between them ?

Java has two types of exceptions: checked exceptions and unchecked exceptions. Unchecked exceptions do not need to be declared in a method or a constructor's throws clause, if they can be thrown by the execution of the method or the constructor, and propagate outside the method or constructor boundary. On the other hand, checked exceptions must be declared in a method or a constructor's throws clause. See here for tips on Java exception handling.

45. What is the difference between Exception and Error in java ?

Exception and Error classes are both subclasses of the Throwable class. The Exception class is used for exceptional conditions that a user's program should catch. The Error class defines exceptions that are not expected to be caught by the user program.

46. What is the difference between throw and throws ?

The throw keyword is used to explicitly raise a exception within the program. On the contrary, the throws clause is used to indicate those exceptions that are not handled by a method. Each method must explicitly specify which exceptions does not handle, so the callers of that

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method can guard against possible exceptions. Finally, multiple exceptions are separated by a comma.

47. What is the importance of finally block in exception handling ?

A finally block will always be executed, whether or not an exception is actually thrown. Even in the case where the catch statement is missing and an exception is thrown, the finally block will still be executed. Last thing to mention is that the finally block is used to release resources like I/O buffers, database connections, etc.

48. What will happen to the Exception object after exception handling ?

The Exception object will be garbage collected in the next garbage collection.

49. How does finally block differ from finalize() method ?

A finally block will be executed whether or not an exception is thrown and is used to release those resources held by the application. Finalize is a protected method of the Object class, which is called by the Java Virtual Machine (JVM) just before an object is garbage collected.

50 What is an exception?

An exception is an event, which occurs during the execution of a program, that disrupts the normal flow of the program's instructions.

PART B

1. Explain the document object model architecture
2. Explain the various event handlers in java script. Give an example.
3. Write a java script program to develop the arithmetic calculator
4. Write a java script program to perform the validation process in an application programs
5. Write short notes on scripting languages.
6. What are the various java script objects? Explain each with an example.
7. How to validate the check box and check box group?
8. Explain about types of cascading style sheet? Explain with example
9. Explain the various CSS properties
10. What is html? explain the various html tags to develop the web pages.
11. What is the use of HTML Forms? Create a HTML Form page for Railway Registration Form
12. What is CSS ? List out the Various CSS Properties. Explain the various concepts of CSS properties with neat example.
13. What are the types of CSS? Explain any two with neat example.
14. . Explain how Dhtml used to develop the web pages.
15. With a neat diagram write a SCRIPT PROGRAM with validation for the following (each program carries 16 marks)
 - a. Student Mark List • Inventory System • Employee Pay Slip generation • Railway Ticket Reservation • Online Quiz program

UNIT III

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PART – A

1. What is the use of DNS?

Domain naming service (DNS) is used to map one particular IP address to a string of characters.

2. What is mean by URL connection? (AU NOV/DEC 2011)

URL connection is a general – purpose class, which provides methods to know more about the remote resource.

3. Define protocol.

Communication between computers in a network or a different network requires certain set of rules called protocol.

4. What are the types of protocol?

Java networking is done using TCP /IP protocol. Some of the different kinds of protocols available are HTTP (Hyper Text Transfer Protocol – enables interaction with the internet), FTP (File Transfer Protocol – enables transfer of files between computers), SMTP (Simple Mail Transfer Protocol and NNTP (Network News Transfer Protocol – acts as a bulletin board for sharing news)

5. . What is the method of datagram packet?

Methods: Send (Datagram packet d) – dispatches the given datagram packet object. Receive (Datagram packet p) – receives the given datagram packet object. Close () – closes the socket connection.

6. Write about get methods in the DatagramPacket class.

DatagramPacket has five methods that retrieve different parts of a datagram: the actual data plus several fields from its header. These methods are mostly used for data grams we receive from the network. public InetAddress getAddress() • public int getPort()
public byte[] getData() • public int getLength() • public int getOffset() •

7. Write about set methods in the DatagramPacket class.

public void setData(byte[] data)
public void setData(byte[] data, int offset, int length)
public void setAddress(InetAddress remote)
public void setPort(int port)
public void setLength(int length)

8. Describe SO_TIMEOUT socket option.

SO_TIMEOUT is the amount of time, in milliseconds, that receive () waits for an incoming datagram before throwing an InterruptedIOException. Its value must be non-negative. If SO_TIMEOUT is 0, receive () never times out. This value can be changed with the setSoTimeout () method and inspected with the getSoTimeout () method.

9. Describe SO_RCVBUF socket option.

It is closely related to the SO_RCVBUF option of socket. It determines the size of the buffer used for network I/O. Larger buffers tend to improve performance for reasonably fast connections because they can store more incoming data grams before overflowing. Sufficiently large receive buffers are even more important for UDP.

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10. Describe unicast socket.

Unicast sockets create a connection with two well-defined endpoints. There is one sender and one receiver and although they may switch roles, at any given time it is easy to tell which is which.

11. What is JDBC ?

JDBC is an abstraction layer that allows users to choose between databases. JDBC enables developers to write database applications in Java, without having to concern themselves with the underlying details of a particular database.

12. Explain the role of Driver in JDBC.

The JDBC Driver provides vendor-specific implementations of the abstract classes provided by the JDBC API. Each driver must provide implementations for the following classes of the java.sql package: Connection, Statement, PreparedStatement, CallableStatement, ResultSet and Driver.

13. .What is the purpose Class.forName method ?

This method is used to load the driver that will establish a connection to the database.

14. What is the advantage of PreparedStatement over Statement ?

PreparedStatement are precompiled and thus, their performance is much better. Also, PreparedStatement objects can be reused with different input values to their queries.

15. What is Remote Method Invocation (RMI)?

Remote Method Invocation (RMI) allows a Java Object that executes on one machine to invoke a method of a Java Object that executes on another machine. This is an important feature, because it allows you to build distributed applications.

16. What are stubs and skeletons in RMI?

A stub is Java Object that resides on the client machine. Its function is to present the same interfaces as the remote server. Remote method calls initiated by the client are actually directed to the stub.

A skeleton is a Java Object that resides on the server machine. It receives request, performs deserialization, and invokes the appropriate code on the server.

17. What do you meant by Activation in RMI?

- a. Activation in RMI has the capability to remotely activate an object.
- b. The activator will check the status of the remote object and perform what ever initialization is necessary to get it running again.

18. What is a Java Bean?

Java Bean is a software component that has been designed to be reusable in a variety of different environments. There is no restriction on the capacity of a Bean.

19. List some advantages of Java Beans.

- a. A Bean obtains all the benefits of Java's "Write – Once, run-anywhere" paradigm.

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- b. The configuration settings of a Bean can be saved in persistent storage and restored at a later time.
- c. A Bean may register to receive events from other objects and can generate events that are sent to other objects.

20. What are JAR files?

A JAR file allows you to efficiently deploy a set of classes and their associated resources. Elements in a JAR file are compressed, which makes downloading a JAR file much faster than separately downloading several uncompressed files.

PART - B

1. Develop a message abstract class which contains playMessage abstract method. Write a different sub-classes like TextMessage, VoiceMessage and FaxMessage classes for to implementing the playMessage method.
2. . Develop a abstract Reservation class which has Reserve abstract method.
3. Implement the sub-classes like ReserveTrain and ReserveBus classes and implement the same.
4. Develop an Interest interface which contains simpleInterest and compInterest methods and static final field of Rate 25%. Write a class to implement those methods.
5. Develop a Library interface which has drawbook(), returnbook() (with fine), checkstatus() and reservebook() methods. All the methods tagged with public.
6. Develop an Employee class which implements the Comparable and Cloneable interfaces. Implement the sorting of persons (based on name in alphabetical). Also implement the shallow copy (for name and age) and deep copy (for DateOfJoining).
7. Explain the different methods supported in Object class with example.
8. Explain the methods supported in Class class.
9. Explain the Methods supported in reflect package. Also write a program to implement the reflection of a particular class details like constructors, methods and fields with its modifiers.
10. Develop a static Inner class called Pair which has MinMax method for finding min and max values from the array.
11. What is proxy class? Develop a code for constructing a proxy objects to trace a binary search method with explanations.
12. Explain the classes under 2D shapes.
13. Explain event handling with examples.
14. Explain action event with an example.
15. What are the swing components. Explain.
16. Describe the AWT event hierarchy.

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UNIT IV

PART – A

1. List any two keyboard events?

- ✓ onKeyPress
- ✓ onKeyUp
- ✓ onKeyDown

2. List any two mouse events?

- ✓ onMouseUp
- ✓ onMouseDown
- ✓ onMouseOver
- ✓ onClick

3. 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.

4. 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 file 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.

5. 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.

6. Explain the life cycle methods of a Servlet.

The javax.servlet.Servlet interface defines the three methods known as life-cycle method.

```
public void init(ServletConfig config) throws ServletException
public void service( ServletRequest req, ServletResponse res) throws ServletException,
IOException
public void destroy()
```

First the servlet is constructed, then initialized with the init() method.

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Any request from client are handled initially by the service() method before delegating to the doXXX() methods in the case of HttpServlet.

The servlet is removed from service, destroyed with the destroy() method, then garbage collected and finalized.

7. What is the difference between the getRequestDispatcher(String path) method of javax.servlet.ServletRequest interface and javax.servlet.ServletContext interface?

The getRequestDispatcher(String path) method of javax.servlet.ServletRequest interface accepts parameter the path to the resource to be included or forwarded to, which can be relative to the request of the calling servlet. If the path begins with a "/" it is interpreted as relative to the current context root.

The getRequestDispatcher(String path) method of javax.servlet.ServletContext interface cannot accept relative paths. All paths must start with a "/" and are interpreted as relative to current context root.

8. Explain the directory structure of a web application.

The directory structure of a web application consists of two parts.

A private directory called WEB-INF

A public resource directory which contains public resource folder.

WEB-INF folder consists of

1. web.xml
2. classes directory
3. lib directory

9. What are the common mechanisms used for session tracking?

- ✓ Cookies
- ✓ SSLsessions
- ✓ URL- rewriting

10. 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).

11. Explain ServletContext

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ServletContext interface is a window for a servlet to view its environment. A servlet can use this interface to get information such as initialization parameters for the web application or servlet container's version. Every web application has one and only one ServletContext and is accessible to all active resource of that application

12. What is preinitialization of a servlet?

A container does not initialize the servlets as soon as it starts up, it initializes a servlet when it receives a request for that servlet first time. This is called lazy loading. The servlet specification defines the <load-on-startup> element, which can be specified in the deployment descriptor to make the servlet container load and initialize the servlet as soon as it starts up. The process of loading a servlet before any request comes in is called preloading or preinitializing a servlet.

13. What is the difference between Difference between doGet() and doPost()?

A doGet() method is limited with 2k of data to be sent, and doPost() method doesn't have this limitation. A request string for doGet() looks like the following:

`http://www.allapplabs.com/svt1?p1=v1&p2=v2&...&pN=vN`

doPost() method call doesn't need a long text tail after a servlet name in a request. All parameters are stored in a request itself, not in a request string, and it's impossible to guess the data transmitted to a servlet only looking at a request string.

14. What is the difference between HttpServlet and GenericServlet?

A GenericServlet has a service() method aimed to handle requests. HttpServlet extends GenericServlet and adds support for doGet(), doPost(), doHead() methods (HTTP 1.0) plus doPut(), doOptions(), doDelete(), doTrace() methods (HTTP 1.1).

Both these classes are abstract.

15. What is the difference between ServletContext and ServletConfig?

ServletContext: Defines a set of methods that a servlet uses to communicate with its servlet container, for example, to get the MIME type of a file, dispatch requests, or write to a log file. The ServletContext object is contained within the ServletConfig object, which the Web server provides the servlet when the servlet is initialized

ServletConfig: The object created after a servlet is instantiated and its default constructor is read. It is created to pass

16. What is an Applet ?

A java applet is program that can be included in a HTML page and be executed in a java enabled client browser. Applets are used for creating dynamic and interactive web applications.

17. Explain the life cycle of an Applet.

An applet may undergo the following states:

- **Init:** An applet is initialized each time is loaded.
- **Start:** Begin the execution of an applet.
- **Stop:** Stop the execution of an applet.
- **Destroy:** Perform a final cleanup, before unloading the applet.

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18. What happens when an applet is loaded ?

First of all, an instance of the applet's controlling class is created. Then, the applet initializes itself and finally, it starts running.

19 What is the difference between an Applet and a Java Application ?

Applets are executed within a java enabled browser, but a Java application is a standalone Java program that can be executed outside of a browser. However, they both require the existence of a Java Virtual Machine (JVM).

Furthermore, a Java application requires a main method with a specific signature, in order to start its execution. Java applets don't need such a method to start their execution.

Finally, Java applets typically use a restrictive security policy, while Java applications usually use more relaxed security policies.

20. What are the restrictions imposed on Java applets ?

Mostly due to security reasons, the following restrictions are imposed on Java applets:

- An applet cannot load libraries or define native methods.
- An applet cannot ordinarily read or write files on the execution host.
- An applet cannot read certain system properties.
- An applet cannot make network connections except to the host that it came from.
- An applet cannot start any program on the host that's executing it.

21. What are untrusted applets ?

Untrusted applets are those Java applets that cannot access or execute local system files. By default, all downloaded applets are considered as untrusted.

22. What is the difference between applets loaded over the internet and applets loaded via the file system ?

Regarding the case where an applet is loaded over the internet, the applet is loaded by the applet classloader and is subject to the restrictions enforced by the applet security manager.

Regarding the case where an applet is loaded from the client's local disk, the applet is loaded by the file system loader.

Applets loaded via the file system are allowed to read files, write files and to load libraries on the client. Also, applets loaded via the file system are allowed to execute processes and finally, applets loaded via the file system are not passed through the byte code verifier.

23. What is the applet class loader, and what does it provide ?

When an applet is loaded over the internet, the applet is loaded by the applet classloader. The class loader enforces the Java name space hierarchy. Also, the class loader guarantees that a unique namespace exists for classes that come from the local file system, and that a unique namespace exists for each network source.

When a browser loads an applet over the net, that applet's classes are placed in a private namespace associated with the applet's origin. Then, those classes loaded by the class loader are passed through the verifier. The verifier checks that the class file conforms to the Java language specification . Among other things, the verifier ensures that there are no stack overflows or underflows and that the parameters to all bytecode instructions are correct.

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24. What is the applet security manager, and what does it provide ?

The applet security manager is a mechanism to impose restrictions on Java applets. A browser may only have one security manager. The security manager is established at startup, and it cannot thereafter be replaced, overloaded, overridden, or extended.

25. What is the difference between a Choice and a List ?

A Choice is displayed in a compact form that must be pulled down, in order for a user to be able to see the list of all available choices. Only one item may be selected from a Choice. A List may be displayed in such a way that several List items are visible. A List supports the selection of one or more List items.

26. What is a layout manager ?

A layout manager is used to organize the components in a container.

27. What is the difference between a Scrollbar and a JScrollPane ?

A Scrollbar is a Component, but not a Container. A JScrollPane is a Container. A JScrollPane handles its own events and performs its own scrolling.

28. Which Swing methods are thread-safe ?

There are only three thread-safe methods: repaint, revalidate, and invalidate.

29. Name three Component subclasses that support painting.

The Canvas, Frame, Panel, and Applet classes support painting.

30. What is clipping ?

Clipping is defined as the process of confining paint operations to a limited area or shape.

30. What is the difference between a MenuItem and a CheckboxMenuItem ?

The CheckboxMenuItem class extends the MenuItem class and supports a menu item that may be either checked or unchecked.

31. How are the elements of a BorderLayout organized ?

The elements of a BorderLayout are organized at the borders (North, South, East, and West) and the center of a container.

32. How are the elements of a GridBagLayout organized ?

The elements of a GridBagLayout are organized according to a grid. The elements are of different sizes and may occupy more than one row or column of the grid. Thus, the rows and columns may have different sizes.

33. What is the difference between a Window and a Frame ?

The Frame class extends the Window class and defines a main application window that can have a menu bar.

34. What is the relationship between clipping and repainting ?

When a window is repainted by the AWT painting thread, it sets the clipping regions to the area of the window that requires repainting.

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35. What is the relationship between an event-listener interface and an event-adapter class ?

An event-listener interface defines the methods that must be implemented by an event handler for a particular event. An event adapter provides a default implementation of an event-listener interface.

36. How can a GUI component handle its own events ?

A GUI component can handle its own events, by implementing the corresponding event-listener interface and adding itself as its own event listener.

37. What advantage do Java's layout managers provide over traditional windowing systems ?

Java uses layout managers to lay out components in a consistent manner, across all windowing platforms. Since layout managers aren't tied to absolute sizing and positioning, they are able to accomodate platform-specific differences among windowing systems.

38. What is the design pattern that Java uses for all Swing components ?

The design pattern used by Java for all Swing components is the Model View Controller (MVC) pattern.

PART B

1. Explain the concept of Servlets with an example program
2. Explain about applet to servlet communication with example program?
3. Explain about applet-to-applet communication with example program?
4. What is HTTP Tunneling? Explain with an example
5. List down the methods of GenericServlet .Explain ach of them with an example
6. List down the methods of HttpServlet .Explain ach of them with an example
7. Explain about JSP expressions
8. Write down the differences between <jsp: include> and <@include...> with example
9. What are Directives? Explain about JSP diecives.
10. Explain the architechture of a Servlet?
11. Explain life cycle of a Servlet?
12. Explain about session tracking.
13. Two ways of maintaining the sessions:
 - i. Cookies
 - ii. Rewriting URLs
14. What is DOM? Explain its usage with HTML with an example.
15. Write a servlet program to implement session tracking using HTTP session object.
16. Compare JSP with servlets.
17. Explain the servlet life cycle model and explain javax.servlet package
18. Write a HTTP servlet program to authenticate a user and retrieve all information from a HTML registration Form and store in a given data base.
19. What is DOM? Draw the detailed DOM objects structure. Explain with its usage.

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UNIT - V

PART - A

1. WHAT IS THE USE OF XML NAMESPACE?

- ✓ XML allows document authors to create custom elements.
- ✓ This extensibility can result in naming collisions (i.e. different elements that have the same name) among elements in an XML document.
- ✓ An XML namespace is a collection of element and attribute names. Each namespace has a unique name that provides a means for document authors to unambiguously refer to elements with the same name (i.e. prevent collisions).

2. WHAT ARE THE USES OF XML?

- ✓ CML – Chemical Markup Language – for chemical equations
- ✓ MML - Mathematical Markup Language – for Mathematical equations and derivations.
- ✓ Used in bio medical line.

3. WHAT IS THE USE OF XML?

- ✓ Extensible Markup Language, derived from SGML (Standard Generalized Markup Language).
- ✓ XML is widely supported open technology (i.e. non-proprietary) for electronic data exchange and storage.
- ✓ XML is actually a language used to create other markup languages to describe data in a structured manner.
- ✓ XML documents contain only data, not formatting instructions, so applications that process XML documents must decide how to manipulate or display the document's data.

4. WHAT DO YOU MEAN BY DTD IN XML?

- ✓ DTD means Document Type Definition.
- ✓ DTD file is similar to CSS file, because DTD also contains only styles.
- ✓ DTD contains various styles which are to be applied in XML document .
- ✓ Like .CSS file .DTD file also should be linked with XML program.

Styles in XML program should be save with .xsl (Xml Style Sheet Language) extension.

5. 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.

6. 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.

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

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

8. What are the different XSLT elements?

- ✓ Stylesheet
- ✓ Value-of
- ✓ For-each
- ✓ Sort
- ✓ Text

9. What is VoiceXML?

VoiceXML is an emerging standard for speech-enabled applications. Its XML syntax defines elements to control a sequence of interaction dialogs between a user and an implementation platform. VoiceXML uses XML text to drive voice dialogs.

10. What is XQuery?

XQuery is a W3C initiative to define a standard set of constructs for querying and searching XML documents. XQuery brings database query processing to XML.

11. What is XForm?

XForm is an XML approach that overcomes the limitations of HTML forms. XForm includes a variety of buttons, scrollbars and menus. It generates XML form data as output. XForm's model has the capability to work with the variety of user interfaces.

12. What is XPath?

Xpath is used to navigate XML tree structures. XPath gets its name from its use of a path notation to navigate through the hierarchical tree structure of an XML document. It is an important XML technology due to its role in providing a common syntax and semantics for functionality in both XSLT and XPointer.

13. what are complex types?

complex types are an important aspects of xml schema that allow application developers to define application-specific datatypes that can be checked by programs that check XML document for validity. XML schema divides complex types into two categories: those with simple content & those with complex content.

14. What all are the presentation technologies?

- ✓ CSS - cascading style sheets
- ✓ XSL - provides users with ability to describe how xml data & document are to be formatted.

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- ✓ Xforms - it is a GUI toolkit for creating user interfaces & delivering the results in XML.
- ✓ Xhtml - it is used to replace HTML with more flexible approach to display web content.
- ✓ VoiceXML - it is an emerging standard for speech enabled application.

15. what are all the Transformation techniques?

XSLT - it is an XML-based language used to transform XML documents into other formats such as HTML for web display.

XLINK - highlighting that element or taking the user directly to that point in the document.

XPATH - xpath gets its name from its use of a path notation to navigate through the hierarchical tree structure of an XML document. XQUERY - it is a W3C initiative to define a standard set of constructs for querying & searching XML documents.

16. Explain any two XForm implementations?

X-Forms - it is a Java-based XML browser. It implements a large part of X-Forms & uses X-Forms together with XSL-FO on the user interface side. Mozilla XForms Preview - is an XML-based web development software that implements XForms & gives the current web browser the ability to send, receive & process XML documents.

17. what are the Important of SAX?

- ✓ SAX is an event-driven.
- ✓ SAX supports processing pipelines.
- ✓ SAX requires programmers to maintain state.

18. What is metadata?

Literally data about data. XML element and attribute names are considered metadata in that they may be used to describe the data contained in a document. Metadata isn't needed but it certainly helps.

19. What is DTD? How is it different from XML?

- ✓ DTD stands for Document Type Definition
- ✓ DTD is a description of the structure & the elements and attributes that define a class of XML document.
- ✓ DTD can be declared both internally in a XML document and as an external reference.
- ✓ DTD XML Schema
- ✓ DTD is used to define the structure of an XML document.
- ✓ XML Schema is used to define the structure of an XML document.
- ✓ Data type for elements limited to text. 2. Numerous predefined data types available.
- ✓ Complex data types cannot be defined. 3. Ability to define complex type that map to application data structure.
- ✓ DTD document is stored as "filename.dtd" 4. XML Schema document is stored as "filename.xml"

20. What is XML? How is it different from HTML?

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Xml is the text based make up language that stores the data in a structured format using meaningful tags. It allows computers to store and exchange data in a format that can be interpreted by any other computer with different hardware or software specification.

XML HTML

- ✓ xml stands for Extensible markup language
- ✓ HTML stands for Hyper Text Mark Up
- ✓ Language.2.Several languages are derived from xml & wml
- ✓ HTML can be derived from xml.
- ✓ Xml uses indefinite, user defined,
- ✓ meaningful set of tags which can be used to include XML data in the webpage.
- ✓ HTML uses a fixed set of tags which can be used to specify the appearance of the webpage.

21. Define Directives.

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

22. 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,
- ✓ language
- ✓ extends
- ✓ import
- ✓ session
- ✓ buffer
- ✓ contenttype

23. What is a Hidden Comment?

A comments that documents the JSP page but is not sent to the client. The JSP engine ignores a hidden comment, and does not process any code within hidden comment tags. A hidden comment is not sent to the client, either in the displayed JSP page or the HTML page source. The hidden comment is useful when you want to hide or \"comment out\" part of your JSP page.

24. What is a Expression?

An expression tag contains a scripting language expression that is evaluated, converted to a String, and inserted where the expression appears in the JSP file. Because the value of an expression is converted to a String, you can use an expression within text in a JSP file. Like

```
<%= someexpression %>
```

```
<%= (new java.util.Date()).toLocaleString() %>
```

You cannot use a semicolon to end an expression

25. What is a Declaration?

A declaration declares one or more variables or methods for use later in the JSP source file.

A declaration must contain at least one complete declarative statement. You can declare any number of variables or methods within one declaration tag, as long as they are separated by semicolons. The declaration must be valid in the scripting language used in the JSP file.

```
<%! somedeclarations %>
```

```
<%! int i = 0; %>
```

```
<%! int a, b, c; %>
```

26. What is a Scriptlet?

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A scriptlet can contain any number of language statements, variable or method declarations, or expressions that are valid in the page scripting language. Within scriptlet tags, you can

1. Declare variables or methods to use later in the file (see also Declaration).
2. Write expressions valid in the page scripting language (see also Expression).
3. Use any of the JSP implicit objects or any object declared with a `<jsp:useBean>` tag.

You must write plain text, HTML-encoded text, or other JSP tags outside the scriptlet. Scriptlets are executed at request time, when the JSP engine processes the client request. If the scriptlet produces output, the output is stored in the out object, from which you can display it.

27. What are implicit objects? List them?

Certain objects that are available for the use in JSP documents without being declared first. These objects are parsed by the JSP engine and inserted into the generated servlet. The implicit objects are listed below

- ✓ request
- ✓ response
- ✓ pageContext
- ✓ session
- ✓ application
- ✓ out
- ✓ config
- ✓ page
- ✓ exception

28. Difference between forward and sendRedirect?

When you invoke a forward request, the request is sent to another resource on the server, without the client being informed that a different resource is going to process the request. This process occurs completely within the web container. When a sendRedirect method is invoked, it causes the web container to return to the browser indicating that a new URL should be requested. Because the browser issues a completely new request any object that are stored as request attributes before the redirect occurs will be lost. This extra round trip a redirect is slower than forward.

29. What are the different scope values for the <jsp:useBean>?

The different scope values for `<jsp:useBean>` are

- ✓ page
- ✓ request
- ✓ session
- ✓ application

30. Explain the life-cycle methods in JSP?

The `jspInit()`- The container calls the `jspInit()` to initialize the servlet instance. It is called before any other method, and is called only once for a servlet instance.

The `_jspService()`- The container calls the `_jspService()` for each request, passing it the request and the response objects.

The `jspDestroy()`- The container calls this when it decides to take the instance out of service. It is the last method called in the servlet instance.

35. Define JSP.

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

36. Define Directives.

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

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

The page directive defines information that will be globally available for that JSP,

1. language
2. extends
3. import
4. session
5. buffer
6. contentType

38. Define XML.

XML stands for EXtensible Markup Language

XML is a markup language much like HTML

XML was designed to carry data, not to display data

XML tags are not predefined. You must define your own tags

XML is designed to be self-descriptive

XML is a W3C Recommendation

39. Define DTD.

A Document Type Definition (DTD) defines the legal building blocks of an XML document.

It defines the document structure with a list of legal elements and attributes.

A DTD can be declared inline inside an XML document, or as an external reference.

40. What is the use of web services?

- ✓ Web services encompass a set of related standards that can enable two computer
- ✓ The data is passed back and forth using standard protocols such as HTTP, the same protocol used to transfer ordinary web pages.
- ✓ Web services operate using open, text-based standards that enable components written in different languages and on different platforms to communicate.
- ✓ They are ready to use pieces of software on the Internet. XML, SOAP, Web Services Description Language (WSDL) and Universal Description, Discovery and Integration (UDDI) are the standards on which web services rely.
- ✓ UDDI is another XML based format that enables developers and business to publish and locate Web services on a network.

41. What are the advantages of web services?

- ✓ Reusable application-components.
- ✓ Web services can offer application-components like: currency conversion, weather reports, or even language translation as services.
- ✓ Connect existing software.
- ✓ Web services can help to solve the interoperability problem by giving different applications a way to link their data.
- ✓ With Web services you can exchange data between different applications and different platforms.

42. List out some web service technologies?

- a. XML,
- b. SOAP,
- c. WSDL

43. What is XML ?

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Extensible markup language. It offer a standard, flexible and inherently extensible data format, XML significantly reduces the burden of deploying the many technologies needed to ensure the success of Web services.

44. What is WSDL?

Web Services Description Language.

WSDL is a language for describing Web services. WSDL describes Web services starting with the messages that are exchanged between the requester and provider agents. The messages themselves are described abstractly and then bound to a concrete network protocol and message format.

45. What are Web Services?

- ✓ Web services are application components
- ✓ Web services communicate using open protocols
- ✓ Web services are self-contained and self-describing
- ✓ Web services can be discovered using UDDI
- ✓ Web services can be used by other applications
- ✓ XML is the basis for Web services

46 .How Does web services Work?

The basic Web services platform is XML + HTTP.

XML provides a language which can be used between different platforms and programming languages and still express complex messages and functions.

The HTTP protocol is the most used Internet protocol.

47. What are the various web services platform elements?

- ✓ SOAP (Simple Object Access Protocol)
- ✓ UDDI (Universal Description, Discovery and Integration)
- ✓ WSDL (Web Services Description Language)

48. What are the types of web services and its uses?

- ✓ Reusable application-components.
- ✓ There are things applications needs very often. So why make these over and over again?
- ✓ Web services can offer application-components like: currency conversion, weather reports, or even language translation as services.
- ✓ Connect existing software.
- ✓ Web services can help to solve the interoperability problem by giving different applications a way to link their data.
- ✓ With Web services you can exchange data between different applications and different platforms.

49. Write short notes on web services technologies?

Web service architecture involves many layered and interrelated technologies. There are many ways to visualize these technologies, just as there are many ways to build and use Web services.

50. Explain DTD For Xml Schemas

- ✓ XML documents are processed by applications
- ✓ Applications have assumptions about XML documents
- ✓ DTDs allow to formalize some of these constraints
- ✓ Part of the constraint checking must still be programmed

51. What are modeling DTDs?

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- ✓ Data models can be mapped to many different DTDs♣
- ✓ What is a good DTD? What is a bad DTD?♣
- ✓ How does the DTD affect further processing♣

PART –B

1. Explain XML & DTD.
2. Explain briefly XML Schema and Transformation?
3. Explain Simple API for XML (SAX):
4. Short notes on XML Namespaces?
5. Explain briefly DTD?
6. Explain about JSP with example program.
7. JSP Directives.
8. Write an ASP/JSP code to access a table and records from a student database to obtain the result of a student.
9. List out objects associated with JSP/ASP and highlight the features of each object. Explain the various JSP elements.
10. Create a XML document to store voter ID, voter name, address and date of birth details. Create a DTD to validate the document.
11. Explain the concept of web services.
12. Explain xml schema with an example.
13. Explain SOAP concepts.
14. What are the various session tracking mechanisms. Explain with example .
15. Develop the web page for student management system using web services.
16. Develop the web page for library management system using web services.
17. Develop the web page for railway reservation system using web services.
18. Explain web services architecture.
19. Write a program for any two web services.
20. How to store the java objects as files
21. Explain databases and Servlet concepts.