

Code No: **R1641053**

R16

Set No. 1

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

WEB TECHNOLOGIES

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any FOUR questions from Part-B

PART-A (14 Marks)

1. a) What are the different ways you can provide value for color property in CSS rule? [3]
- b) What is the difference between a constructor in Java and one in JavaScript? [2]
- c) Differentiate between document type declaration and document type definition [2]
- d) What is the difference between the sort and asort functions? [2]
- e) How to write and run a Perl script? [2]
- f) Justify "Arrays in Ruby are more flexible than those of most of the other common languages." [3]

PART-B (4x14 = 56 Marks)

2. a) Write CSS rules. Create three div elements of varying colors, each with a width and height of 200px. On the first box, add a dimgrey box-shadow with a horizontal offset of 15px, a vertical offset of 15px and a blur radius of 20px. On the second box, add a dimgrey box-shadow with a horizontal offset of -15px, a vertical offset of -15px and a blur radius of 30px. On the third box, add a dimgrey box-shadow with a horizontal offset of 15px, a vertical offset of 15px and a blur radius of 10px. [7]
- b) Describe on internal linking with example program? How meta element is used to specify information about a document? [7]
3. a) Your Javascript should read a four-digit integer entered by the user in a prompt dialog and encrypt it as follows: Replace each digit by ((the sum of that digit plus 7) modulus 10). Then swap the first digit with the third, and swap the second digit with the fourth. Then output HTML5 text that displays the encrypted integer.
Also write a script that inputs an encrypted four-digit integer and decrypts it to get the original number. [7]
- b) Explain Pattern Matching using Regular Expressions in Javascript with example scripts? [7]

4. a) Give the purpose of XML processors? Discuss in detail on SAX approach? [7]
b) Create a DTD for a catalog of cars, where each car has the child elements make, model, year, color, engine, number_of_doors, transmission_type, and accessories. The engine element has the child elements number_of_cylinders and fuel_system (carbureted or fuel injected). The accessories element has the attributes radio, air_conditioning, power_windows, power_steering, and power_brakes, each of which is required and has the possible values yes and no. Entities must be declared for the names of popular car models. [7]
5. a) Describe parameter passing in PHP. What are the two ways you can specify that a parameter is to be passed by reference? [7]
b) Describe the scope of variables and lifetime of variables with necessary PHP scripts? [7]
6. a) Discuss on retrieving documents from the web with Perl? [7]
b) Explain perl match, substitution, translation and character class operations using regular expressions? [7]
7. a) Write a Ruby program that reads lines of text in which the words are separated by whitespace or some common kinds of punctuation, such as commas, periods, semicolons, and so forth. The objective of the program is to produce a frequency table of the words found in the input. [7]
b) Write a Ruby program that input a list of numbers from the keyboard and output two lists of numbers, one with input numbers greater than zero and one with those less than zero (ignore the zero-valued numbers). You must first build two arrays with the required output numbers before you display any of them. [7]

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Answer ALL sub questions from Part-A

Answer any FOUR questions from Part-B

PART-A (14 Marks)

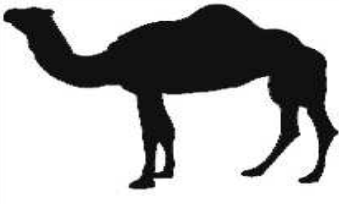
1. a) Categorize each of the following as an element or an attribute in HTML:
i) width ii) td iii) th iv) name v) select vi) type [2]
- b) What parameter-passing method does JavaScript use? [2]
- c) Differentiate between DTD and XML Schema. [3]
- d) In what two ways can arrays in PHP be created? [2]
- e) Describe the syntax and use of variables in Perl? [2]
- f) What is one of the most common uses of Ruby? What is the difference between the two kinds of string literals? [3]

PART-B (4x14 = 56 Marks)

2. a) Explain about CSS basics? Write CSS rule to create a text shadow on the phrase "New features in CSS3" with a horizontal offset of 2px, a vertical offset of 5px, a blur radius of 6px and a text-shadow color deep skyblue. [7]
- b) Discuss about tables in HTML5? Write an HTML5 document that produces the table shown below? Assume the image file is camel.jpg.

Table Example: Spanning Rows and Columns

A more complex sample table

	Camelid comparison Approximate as of 6/2011			
	# of humps	Indigenous region	Spits?	Produces wool?
Camels (bactrian)	2	Africa/Asia	Yes	Yes
Llamas	1	Andes Mountains	Yes	Yes

3. a) Write a script that reads in a five-digit integer and determines whether it's a palindrome. If the number is not five digits long, display an alert dialog indicating the problem to the user. Allow the user to enter a new value after dismissing the alert dialog. [7]

- b) Implement the following functions:
- i) Function celsius returns the Celsius equivalent of a Fahrenheit temperature,
 $C = 5.0 / 9.0 * (F - 32)$;
 - ii) Function fahrenheit returns the Fahrenheit equivalent of a Celsius temperature,
 $F = 9.0 / 5.0 * C + 32$;
 - iii) Use these functions to write a script that enables the user to enter either a Fahrenheit or a Celsius temperature and displays the Celsius or Fahrenheit equivalent.
Your HTML5 document should contain two buttons—one to initiate the conversion from Fahrenheit to Celsius and one to initiate the conversion from Celsius to Fahrenheit. [7]
4. a) Write the significance of XML processors? Discuss in detail on DOM approach? [7]
b) A book has exactly one title, one or more chapters, one or more authors, a price and an ISBN number. An author has a first name, an optional middle name and a last name. A chapter consists of one or more paragraphs. Write a DTD for this scenario and a sample XML document following this DTD. [7]
5. a) How can a variable used outside a function be accessed by the function? How can you define a variable in a function so that its lifetime extends beyond the time the function is in its first execution? Explain with example PHP scripts? [7]
b) Write the HTML markup to provide a form that collects names and telephone numbers. The phone numbers must be in the format ddd-ddd-dddd. Write a PHP script that checks the submitted telephone number to be sure that it conforms to the required format and then returns a response indicating whether the number was correct. [7]
6. a) Discuss in details the various loop structures with example perl scripts. [7]
b) Describe the various operations on files with example perl scripts. [7]
7. a) With Ruby programs, explain remembering matches and substitution in pattern matching? [7]
b) Write a Ruby program that input three names, on separate lines, from the keyboard and display them in alphabetical order. Do not use arrays. [7]

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1. a) What is hidden input in html? How to create it? [2]
- b) How to create multidimensional arrays in Javascript? [2]
- c) Differentiate between DOM and SAX approaches? [3]
- d) What are the four scalar types of PHP? [3]
- e) Give features of Perl language? [2]
- f) What is the difference between the puts and print methods? [2]

PART-B (4x14 = 56 Marks)

2. a) Discuss on Levels of Style Sheets, Style Specification Formats? [7]
- b) A local university has asked you to create an HTML5 document that allows prospective college students to provide feedback about their campus visit. Your HTML5 document should contain a form with text fields for a name and e-mail. Provide checkboxes that allow prospective students to indicate what they liked most about the campus. The checkboxes should include: campus, students, location, atmosphere, dorm rooms and sports. Also, provide radio buttons that ask the prospective students how they became interested in the college. Options should include: friends, television, Internet and other. In addition, provide a text area for additional comments, a submit button and a reset button. Use post to sent the information in the form to <http://www.example.com>. [7]
3. a) Write a javascript script that finds the smallest of several nonnegative integers. Assume that the first value read specifies the number of values to be input from the user. [3]
Write a function minimum3 that returns the smallest of three floating-point numbers. Use the Math.min function to implement minimum3. Incorporate the function into a script that reads three values from the user and determines the smallest value. [4]
- b) Elaborate on Objects creation and manipulation in Javascript? Discuss certain predefined objects with their properties and methods? [7]

4. a) Create an XML schema for a catalog of cars, where each car has the child elements make, model, year, color, engine, number_of_doors, transmission_type, and accessories. The engine element has the child elements number_of_cylinders and fuel_system (carbureted or fuel injected). The accessories element has the attributes radio, air_conditioning, power_windows, power_steering, and power_brakes, each of which is required and has the possible values yes and no. Entities must be declared for the names of popular car models. [7]
b) Explain the working mechanism of AJAX with a suitable example. [7]
5. a) What is coercion? What are the three ways the value of a variable can be explicitly converted to a specific type? How can the type of a variable be determined? [7]
b) Design a registration form with fields you commonly find in websites and store this data into MYSQL database using PHP? [7]
6. a) Explain Arrays in Perl? Write perl program to pass Arrays to subroutine. [7]
b) Discuss various functions used for reading and writing file handles. [7]
7. a) Use class in Ruby that defines a stack-like data structure implemented in an array. The difference between this structure and a stack is that both the top element and the element that is second from the top are accessible. [7]
b) Write a Ruby program that inputs list of numbers from the keyboard. It should output the second-smallest number in the list, along with its position in the list, with 1 being the position of the first number. [7]

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Answer any FOUR questions from Part-B

PART-A (14 Marks)

1. a) Give the difference between 'submit' and 'reset' input elements? [2]
- b) How JavaScript is used to make HTML dynamic? [3]
- c) Differentiate between well-formed and valid XML [2]
- d) What are the two modes of the PHP processor? [2]
- e) Compare for and foreach statements in Perl? [2]
- f) What are the syntactic differences between the JavaScript if statement and that of Ruby? [3]

PART-B (4x14 = 56 Marks)

2. a) How to create the Box Model using CSS and how Conflict Resolution is done with the overlapping rules? [7]
- b) Create an HTML5 document containing an ordered list of three items—ice cream, soft serve and frozen yogurt. Each ordered list should contain a nested, unordered list of your favorite flavors. Provide three flavors in each unordered list. It should also contain an image as an e-mail link. Use attribute alt to provide a description of the image and link. [7]
3. a) Describe the syntax and purpose of switch statement in Javascript. A mail-order house sells five different products whose retail prices are as follows: product 1, \$2.98; product 2, \$4.50; product 3, \$9.98; product 4, \$4.49; and product 5, \$6.87. Write a script that reads a series of pairs of numbers as follows: i) Product number ii) Quantity sold for one day. Your program should use a switch statement to determine each product's retail price and should calculate and output HTML5 that displays the total retail value of all the products sold last week. [7]
- b) Discuss on functions in JavaScript? Write a recursive function power(base, exponent) that, when invoked, returns $\text{base}^{\text{exponent}}$. Incorporate this function into a script that enables the user to enter the base and exponent. [7]

4. a) Explain the integration of PHP and AJAX with example program? [7]
b) What are the differences between simple and complex XML schema types? Define local and global declarations in an XML schema? What are the four categories of complex types in an XML schema? What is the difference between the 'sequence' and 'all' schema elements? [7]
5. a) Compare and Contrast the array sorting functions sort, assort, ksort and rsort, arsort, krsort with example PHP script(s)? [7]
b) Illustrate with example PHP scripts for working with forms and Databases. [7]
6. a) Explain about Hashes in perl? [7]
b) How to supply default values to subroutine and Write perl script to pass hashes to subroutine? [7]
7. a) Describe parameter passing in Ruby with example programs? What are actual and formal parameters? [7]
b) Write overview on Rails? [7]