Reg. No. :

Question Paper Code : 51312

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

Fourth Semester

Information Technology

IT 3401 — WEB ESSENTIALS

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Discern the differences between Hyper Text Transfer Protocol (HTTP) and Hyper Text Transfer Protocol Secure (HTTPS).

2.   Outline the key functionalities of Web Hosting.

3.   How to integrate maps, social media posts, or other web pages directly into the current page? Write a sample code snippet using the HTML *iframe* tag.

4.   How to facilitate the collection and submission of user input on a web page?

5.   State the purpose of the following special datatypes associated with JavaScript.

     •   BigInt (ES11+)

     •   Primitive Wrapper Objects.

6.   Write a JavaScript code snippet for Exception handling.

7.   Outline the philosophy of DNS lookup pertaining for sending and receiving emails through SMTP server.

8.   What is 'Callable' in the context of variables in PHP?

9.   Do cookies have the capability to store login credentials? Consider security implications in your response.

10. How dynamic content generation can be accomplished using servlets?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Provide a brief explanation of the purpose of backups offered by web hosting providers when creating a website. Also, describe Incremental, Differential and Mirror backup methodologies with suitable architectural diagrams. (9)

    (ii) List down the pros and cons of Continuous Data Protection (CDP) pertaining to Web hosting backup methodology. (4)

Or

    (b) For the following scenario, illustrate how client-side and server-side scripting work together to create interactive and functional web applications.

    (i) Assume a sign-up form on your website with fields for username, email and password. On the client-side, write a JavaScript code snippet to validate the form fields before submitting the data to the server. If the email or password does not meet the criteria, an alert is shown and the form submission is prevented. (7)

    (ii) On the server-side, when the user submits the login form, the data is sent to the server, where a PHP script processes it. The script checks the submitted username and password against a database and responds accordingly. Write a PHP code snippet to process it. (6)

12. (a) (i) Explain the purpose of Cascading Style Sheets Level 3 (CSS3). Highlight four key features of CSS3. (7)

    (ii) Provide an example scenario that demonstrates the use of features such as Linear and/or Radial Gradients and Media Queries to achieve a responsive design. (6)

Or

    (b) (i) Explain about the various ways users can input data on a webpage. (7)

    (ii) Write a HTML5 code snippet to tags embed video content directly into web pages. (6)

13. (a) Devise a Java script program that demonstrates the uses of regular expression by creating a simple HTML page with a textarea (T) where the end-user can input text. When the user clicks the "Highlight Words" button, it should highlight the specific words (defined in an array) using regular expressions.

Or

    (b) (i) Explain about the event handling in JavaScript. List down the various types of events that are supported by JavaScript. (7)

    (ii) Describe how events in JavaScript move through the DOM tree in two distinct stages. (6)

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14. (a) (i) Explain in brief about the operational concept of PHP. (7)

   (ii) Give a simple PHP code that demonstrates string pattern matching using regular expressions. (6)

Or

   (b) (i) Devise a simple PHP code that demonstrates reading from and writing to a file. (7)

   (ii) Devise a sample PHP function that establishes a connection to the MySQL database server. (6)

15. (a) With appropriate illustrations, explain in detail about Java Servlet architecture. Furthermore emphasize about Servlet Life cycle.

Or

   (b) Give a sample Java servlet program that demonstrates handling form submissions using both GET and POST methods.

PART C — (1 × 15 = 15 marks)

16. (a) Create a servlet named 'SimpleCalc' mapped to the URL pattern '/SimpleCalc'. The purpose of the servlet is to generate an HTML form where users can input two numbers and select an arithmetic operation (+. -, *, or/). Upon form submission, the servlet calculates the result based on the selected operation and displays it in the HTML response. Also test the written servlet by creating an HTML form that submits data to the servlet URL '/SimpleCalc'.

Or

   (b) Consider a simple database application scenario using servlets for a basic online bookstore. In this scenario, create a servlet that interacts with a database to perform CRUD (Create, Read, Update and Delete) operations on book records. Additionally, extend this application to include additional features such as user authentication, search functionality and sorting.