Diploma in Computer Science with Artificial Intelligence (Full Time)
WEB APPLICATION DEVELOPMENT
Model Paper

Answer All Questions

Part A

[2x20 marks]

Question 1 (15 marks)
1. Briefly describe the following terms
   Web Server
   Web Browser
   DNS Server
   Search Engine Optimization
2. Explain the main steps performed by the web browser when you type URL in the client's browser.
3. What are the main components of a URL and provide examples to illustrate your answer.
4. Describe the concept of protocols in networking and communication and give examples for different types of protocols.

Question 2 (15 marks)
1. Assume you are tasked with developing a web application for a library system. The system should manage books, authors, users, and borrowing transactions. After a user registers, they should be able to search for books, borrow them, and view their borrowing history.
   a. Sketch (Wireframes) the following web pages for the above system.
      i. Library Home Page
      ii. Book Search and Borrow Page
   b. Briefly describe the core skill sets needed in a site development team for this library management project.
2. Discuss the importance of user experience (UX) and explain the concept of web usability and its principles in web application development.
3. After successfully coding and developing a website, outline the key steps involved in publishing it and making it accessible to users on the internet.

Question 3 (15 marks)
1. Write an HTML code block that uses an image as a link to a particular page by adding relevant tool-tips. (Assume the current page is at the root folder and the page to be linked is located in the "resources" subfolder. Use "logo.png" image.)
2. Write an HTML code blocks for creating an ordered list with three items: ice cream, soft drink, yogurt. Each list item should contain a nested unordered list of your

favorite flavors (like chocolate, strawberry etc.). Provide a minimum of three flavors in each unordered list.
3. Briefly describe the use of Style sheet.
4. Give examples for each selector.
   a. Element Selector
   b. ID Selector
   c. Class Selector

Question 4   (15 marks)

1. What are the client-side and server-side scripting languages and Discuss the key differences between them.
2. Write a JavaScript program that prints sum of odd integers from 1 to 10.
3. Identify errors in the following JavaScript codes. (preceding numbers are for your reference only)

   a. while x<100
      total +=x
      ++x

   b. if (gender==1)
      document.write(woman");
      else;
      document.write("man");

4. What will be the output of the following PHP codes
             $m=10;
             $n=20;
             $tot = $m+$n;
             echo("Total is ".$tot."
");

   a. $marks = array (12,87,34,47,54);
      $sum = $marks[0]+$marks[4];
      echo("Sum is ".$sum);

Question 5   (15 marks)

1. Write an HTML code block to create a "Student Registration Form" with a heading that includes text boxes for entering NIC, Name, Phone, and Email. Ensure the form has both Submit and Reset buttons.
2. Write a CSS code block to create an external CSS file that applies the following styles to the heading ("Student Registration Form") in the HTML code of above question 1.
   a. Text color: Dark Blue (#00008B)
   b. Text alignment: Center
   c. Font family: Algerian

3. Provide the HTML code that demonstrates how to link the above external CSS file (from Question 2) to the HTML file you created in Question 1 (Student Registration Form).

4. Modify and re-write the "Reset" button code of above HTML form (from Question 1) to include a JavaScript onclick event. When the "Reset" button is clicked, a window.alert box should appear with the message "Form Fields are cleared." Write the modified HTML code for the "Reset" button.

Part B

This contains twenty (20) multiple choice questions (MCQ). Two (02) marks are given for each question. Underline the most suitable answer.

1. What does HTTP stand for?
   A) HyperText Transmission Protocol
   B) HyperText Transfer Protocol
   C) HyperText Transaction Protocol
   D) HyperText Transformation Protocol

2. What is the correct HTML element for inserting a line break?
   A) <lb>
   B) <break>
   C)
   D) <newline>

3. What is the primary function of a DNS server?
   A) To store and manage website content
   B) To translate domain names into IP addresses
   C) To secure communication between web servers and clients
   D) To host and execute web applications

4. What is the purpose of a search engine?
   A) To help users find information on the Web
   B) To manage user accounts and profiles
   C) To host and store website content
   D) To create interactive animations for web pages

5. What is the primary goal of Search Engine Optimization (SEO)?
   A) To make a website visually appealing
   B) To improve the ranking of a website in search engine results pages (SERPs)
   C) To secure a website against hacking attempts
   D) To increase the load speed of a website

6. Which of the following is a primary function of a web browser?

A) To host and run web applications
B) To manage databases on the server
C) To interpret and display web pages from HTML, CSS, and JavaScript code
D) To optimize the SEO of a website

7. How do you add a background color in CSS?
    A) background-color: #ffffff;
    B) bgcolor: #ffffff;
    C) background: #ffffff;
    D) color-background: #ffffff;

8. What is the primary difference between front-end and back-end development?
    A) Front-end development handles the server-side logic, while back-end development manages the database
    B) Front-end development focuses on the client-side interface, while back-end development handles server-side operations
    C) Front-end development uses PHP, while back-end development uses HTML and CSS
    D) Front-end development is responsible for database management, while back-end development creates user interfaces

9. What is a common use for a CMS?
    A) To run SQL queries on databases
    B) To manage and organize website content
    C) To debug web applications
    D) To design complex algorithms

10. Which of the following is true about client-side scripting?
    A) It is executed on the server
    B) It is executed in the user's browser
    C) It cannot interact with the user interface
    D) It cannot modify the content of a web page

11. How does a web server process a request?
    A) By receiving an HTTP request, retrieving the requested resources, and sending them back to the client
    B) By executing the code in the requested resource and sending the output back to the client
    C) By forwarding the request to another server
    D) By storing the request in a database

12. Which of the following is an example of a popular front-end framework?
    A) Node.js
    B) Django
    C) Angular
    D) Laravel

13. What is the primary function of form validation in web development?
    A) To improve the visual appearance of forms
    B) To ensure that user inputs meet specific criteria before submission
    C) To store user inputs in a database
    D) To link form inputs with server-side scripts

14. Which of the following is the correct way to link a CSS file to an HTML document?
    A) <stylesheet href="style.css">
    B) <style src="style.css">
    C) <link rel="stylesheet" href="style.css">
    D) <css link="style.css">

15. Which HTML tag is used to embed an image in a webpage?
    A) <img>
    B) <image>
    C) <pic>
    D) <photo>

16. What is the correct syntax to declare a JavaScript variable?
    A) variable = myVar;
    B) var myVar;
    C) myVar := var;
    D) let myVar;

17. Which JavaScript function is used to write text to the console?
    A) console.write()
    B) console.print()
    C) console.log()
    D) console.output()

18. Which HTML attribute is used to define inline styles?
    A) class
    B) styles
    C) font
    D) style

19. Which language is typically used for server-side web development?
    A) HTML
    B) CSS
    C) JavaScript
    D) PHP

20. How can you display the contents of a PHP variable on a web page?

    A) print($variable);

B) echo($variable);
C) display($variable);
D) Both A and B