VIT®

Vellore Institute of Technology
(Deemed to be University under section 3 of the UGC Act, 1956)

Reg. No. :

Final Assessment Test(FAT) - Nov/Dec 2024

Programme	M.C.A.	Semester	Fall Semester 2024-25
Course Code	PMCA601L	Faculty Name	Prof. Sandhya P
Course Title	Full Stack Web Development	Slot	A1+TA1
		Class Nbr	CH2024250103068
Time	3 hours	Max. Marks	100

General Instructions

- Write only Register Number in the Question Paper where space is provided (right-side at the top) & do not write any other details.

Course Outcomes

1. Develop interactive and responsive web pages using HTML, CSS and Bootstrap
2. Use JavaScript and JQuery to create dynamic web pages
3. Formulate web applications that employ the MVC architecture
4. Integrate Client and Server using the AJAX
5. Devise sophisticated full-stack web applications by combining advanced web frameworks and technologies

Section - I
Answer all Questions (10 × 10 Marks)

*M - Marks

Q.No	Question	*M	CO	BL

01.	Create a web-based order form for Diwali sweets that includes fields for the customer's name, email address, phone number, and the type of sweets they wish to order. Your task is to implement the following functionalities using HTML, CSS, and JavaScript (DOM manipulation):
	• Design a user-friendly form that collects the required information. (2 marks)
	• Include appropriate input validation for each field using user-defined JavaScript functions (4 marks):
	  • The name should not be empty.
	  • The email should be in a valid format.
	  • The phone number should only contain digits and be exactly 10 digits long.
	  • The selection of sweets should not be empty.
	• On form submission, display error messages next to the invalid fields in red color. If the data is valid, remove any existing error messages. (2 marks)
	• Upon successful submission of the form, display all valid data in a styled format (change the text color to blue) on the same webpage. (2 marks)
		10	1	2

02.	Ashley runs a fashion boutique. She has approached you for designing a webpage for her boutique using HTML5. Design the webpage for the boutique with the following features: • Internal and external hyperlinks (2 marks) • Appropriate lists (2 marks) • A table with elements to express the semantics of its content and no borders (3 marks) • Image with its semantic tag (1 mark)	10	1	1

Sustainable Fashion Trends 2023

- <u>Top Trends</u>
- <u>Global Fashion Agenda</u>

Current Trends

1. Upcycled Fashion
2. Eco-Friendly Materials

Trend Statistics

Trend	Popularity (%)
Upcycled Fashion	65%
Eco-Friendly Materials	72%

Visual Inspirations

A stunning sustainable fashion lookbook showcasing upcycled designs.

▷ 0:00

03. Ms. Poppy runs a culinary business of selling the best popcorns in the world. In her team are multiple food researchers. The researchers came up with two types of instant popcorns where one type could be prepared in microwave and another in empty cooker. The research team wants you to design a feedback webpage that uses HTML-JavaScript-AJAX. The feedback page has two textboxes for getting the ratings of the taste of the two popcorns respectively and a submit button. The webpage also has an empty div. On submission of the form provide a server-side script using PHP that finds which popcorn is tasty based on the rating and fixes higher price for the popcorn that is tasty (Rs.40) and (Rs. 20) otherwise. Using AJAX update the price as the text response in the "div" of the feedback page rather than reloading the entire page.   10 4 3
    - Client-side script (5 marks)
    - Server-side script (5 marks)

04. Rainbow Hospital Chennai has a basic webpage. As a web designer, add the following features to the webpage using HTML, CSS, and jQuery to minimize JavaScript code: 10 2 4
    - The webpage must have two separate unordered lists: one for day shift doctors and another for night shift doctors, along with a textbox and a submit button. (3 marks)
    - Doctors who are on leave on a particular day should be displayed in red (Dr. John Doe, Dr. Michael Blue). Use an appropriate CSS selector to apply the color. Assume that in the day shift, the first doctor in the list is on leave, and in the night shift, the last doctor is on leave. (2 marks)
    - The name of the alternate doctor for the night shift is fetched in the textbox (Dr. Kevin Eric Jacob), and on clicking the button, the last doctor's name (Dr. Michael Blue) in the list should be replaced with the alternate doctor's name

using jQuery. The alternate name must be displayed in the default black color. (5 marks)

Rainbow Hospital Chennai

Day Shift Doctors

- Dr. John Doe
- Dr. Jane Smith
- Dr. Emily Adams

Night Shift Doctors

- Dr. Robert Brown
- Dr. Linda Green
- Dr. Michael Blue

Update Night Shift Doctor

| Dr. Kevin Eric Jacob | [Update]

After entering alternate doctor name for Dr. Michael Blue:

Rainbow Hospital Chennai

Day Shift Doctors

- Dr. John Doe
- Dr. Jane Smith
- Dr. Emily Adams

Night Shift Doctors

- Dr. Robert Brown
- Dr. Linda Green
- Dr. Kevin Eric Jacob

Update Night Shift Doctor

| Enter alternate doctor's nan | [Update]

05. Create an online application for attendance processing before FAT exam. Accordingly perform the following:
    - Create an Angular service that contains an array of attendance objects. An attendance object has register number and attendance percentage of a student. (3 marks)
    - Create two child components. The first component has to display the unordered list of register number of students eligible for exam as their attendance is equal to or above 75%. (2 marks)
    - The second component has to display the unordered list of register numbers of debarred students as their attendance is below 75%. (2 marks)
    - Integrate the two components in AppComponent such that eligible students are first displayed (in green) followed by debarred students (in red). (3 marks)

10 5 6

06. Master Kevin runs a swimming coaching center in Chennai. As your friend design an online account for his students where they can track their performance. Design the application using express which is the minimalistic web development framework for node.js.
    - The web account has a login page for each student to enter username and password. (1 mark)
    - On submission check the credentials (check credentials with hardcoded username and password) in display.js page and if valid then create a session. Display the performance of the student as "<<User Name>>, scored <<score>> in free style and <<score>> in butterfly stroke." Assume some scores for free style and butterfly stroke. If the credentials are invalid then

10 5 5

redirect to the login page and display a text "Enter valid credentials". (5 marks)
- Provide a hyperlink for sign-out in display.js page which redirects to login page and destroys the session. (4 marks)

07. VLabs is the research and development wing of VIT. They want you to develop a web access to their lab. As a web developer you choose to use node.js to develop server-side logic.

- Junior scientists have limited access to the lab. When he types his password an "enter" event is emitted. Handle this event by displaying "Access to capsule-1 granted". Senior scientists have more privileged access to the lab. However they have to enter password and iris scan for the privileged access. Handle this "enter" event by displaying "Access to capsule-1 and 2 granted". Chief scientist Dr. Kevin is the only person with access to all the three capsules of the lab. As a chief he has to enter password, iris scan and voice recognition. Handle this "enter" event by displaying "Access to capsule-1,2 and 3 granted". Perform the above using appropriate built-in module in node.js. (7 marks)
- Assume that a file named "junior.txt" contains the names of all the junior scientists who accessed capsule-1 on that day. Using appropriate built-in module copy the details from "junior.txt" and write to "attendance.txt". (2 marks)
- Also display the current details of the current working directory and file name (junior.txt) in the server-side console using appropriate built-in module in node.js. (1 mark)

08. A dry run testing for online polling of a county is being done. As a developer of the polling portal you choose to use node and express as server-side technology and mongodb as backend. Perform the following:
- Assume that the polling data is in JSON-like format where the keys are "voter-id, symbol, hour-of-casting, minute-of-casting". Write the server-side code for creation of database, collection and 5 documents. (1 marks)
- Based on the route /display, display all the documents in the collection (3 marks)
- Based on the route /display/Object_id, display the vote details of a particular voter based on Object_id (3 marks)
- Based on the route /display/symbol, display the count of voters for the specific symbol (3 marks)

09. JewelTwo is a famous gold jewelry mart in Chennai. They have approached you for developing a webpage to display the jewel and its price. As a developer with expertise in JavaScript you choose to use MERN stack for web application development. This month you are supposed to develop the UI for the application using React with the following features:
- Create a parent component that has 3 instances of stateless function component (TwentyFour) and two instances of stateful class component (TwentyTwo). Use JSX appropriately. (5 marks)
- The function component is for displaying details of 24 Carat jewels and named as "TwentyFour". The component has properties namely <<name>> and <<price>> of the 24 Carat jewel. The component must return a <div> that has two children namely <h1> and the image of the jewel. The text of <h1> tag is "24 Carat <<name>> is priced <<price>>". The three names of jewels are bangle, ring and earring and the respective price is Rs. 100000, Rs. 50000 and Rs. 75000. The <img> tag must have image of the respective bangle, ring and earring. The component must be exported. Ex: 24 Carat <<Bangle>> is priced <<Rs. 100000>> Next line must have the image of the bangle.(3 marks)
- The class component is for displaying details of 22 Carat jewels and named as "TwentyTwo". The component has properties namely <<name>> and <<price>> of the 22 Carat jewel. The component must override the render function that returns a <div> that has two children namely <h1> and the image of the jewel. The text of <h1> tag is "22 Carat <<name>> is priced <<price>>". The two names of jewels are ring and earring and the respective

price is Rs. 50000 and Rs. 75000. The <img> tag must have image of the respective ring and earring. The component must be exported. Ex: 22 Carat <<Ring>> is priced <<Rs. 50000>> Next line must have the image of the ring.(2 marks)

10. The Indian Meteorological Department has recently planned to migrate from a relational to a NoSQL database. As a backend developer, you suggest using MongoDB. You have also chosen Node.js and Express for server-side logic and as the web development framework. Assume that the JSON-like document has the following keys: date, month, year, hour, place, and rainfall (in cm). Perform the following CRUD operations with appropriate routes:

    • Insert a document for rainfall recorded on 16th October 2024 at 11pm as 15cm at Chennai. (2 marks)
    • Delete a record based on Object_id (2 marks)
    • Update rainfall recorded on 20th October 2024 at 11am from 14 to 17cms. (3 marks)
    • Display rainfall in cm at Chennai for the month October alone. (3 marks)

As the front-end is yet to be developed assume you are using POSTMAN to check the routes.

10 3 3

BL-Bloom's Taxonomy Levels - (1.Remembering, 2.Understanding, 3.Applying, 4.Analysing, 5.Evaluating, 6.Creating)

⇔⇔⇔