# ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

## B.Tech (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2024

INFORMATION TECHNOLOGY
V Semester
**IT5501 – WEB TECHNOLOGIES**
(Regulation 2019)

Time:3hrs

Max.Marks: 100

| | |
|---|---|
| CO1 | Implement object oriented concepts using Java language. |
| CO2 | Develop GUI application by including I/O streams and threads. |
| CO3 | Create web pages with proper client–side features. |
| CO4 | Design dynamic web pages with server–side and other technologies. |
| CO5 | Develop simple android based mobile application. |
| CO6 | Deploy web applications in a cloud based environment. |

BL – Bloom's Taxonomy Levels
(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

## PART- A(10x2=20Marks)
### (Answer all Questions)

| Q.No. | Questions | Marks | CO | BL |
|---|---|---|---|---|
| 1 | What will be the Output of the below code?<br>```public class A {<br>    public static void main(String[] args)<br>    {<br>        if (true)<br>            break;<br>    }<br>}``` | 2 | 1 | L3 |
| 2 | Define Autoboxing and Auto-unboxing. | 2 | 1 | L1 |
| 3 | What are the main differences between array and collection? | 2 | 2 | L2 |
| 4 | After having started a child thread, how do we wait in the parent thread for the termination of the child thread? | 2 | 2 | L3 |
| 5 | Identify the role of a callback function in performing a partial page update in an AJAX application. | 2 | 3 | L2 |
| 6 | Write the speech synthesis processing steps in speech synthesis markup language. | 2 | 3 | L2 |
| 7 | Distinguish between CGI and Servlets. | 2 | 4 | L2 |
| 8 | What is JDBC?What are the various drivers of JDBC | 2 | 4 | L1 |
| 9 | Differentiate NodeJS and java script. | 2 | 5 | L1 |
| 10 | List the important components in android architecture. | 2 | 5 | L1 |

## PART- B(5x 13=65Marks)

| Q.No. | Questions | Marks | CO | BL |
|---|---|---|---|---|
| 11(a) | Write a Java application to generate Electricity bill using inheritance and Java packages. Create a class with the following members: Consumer no., consumer name, previous month reading, current month reading, type of EB connection (i.e domestic or commercial). Compute the bill amount using the following tariff .<br>If the type of the EB connection is domestic, | 13 | 1 | L4&5 |

| | | | | |
|---|---|---|---|---|
| | calculate the amount to be paid as follows:<br>First 100 units - Rs. 1 per unit<br>101-200 units - Rs. 2.50 per unit<br>201 -500 units - Rs. 4 per unit<br>> 501 units - Rs. 6 per unit<br>If the type of the EB connection is commercial,<br>calculate the amount to be paid as follows:<br>First 100 units - Rs. 2 per unit<br>101-200 units - Rs. 4.50 per unit<br>201 -500 units - Rs. 6 per unit<br>> 501 units - Rs. 7 per unit | | | |
| | **OR** | | | |
| 11 (b)(i) | Write a Java program to calculate the area of rectangle, circle and triangle using the concept of abstract class. | 6 | 1 | L3 |
| (ii) | Write an application that inputs a telephone number as a string in the form (555) 555-5555. The application should use String method split to extract the area code as a token, the first three digits of the phone number as a token and the last four digits of the phone number as a token. The seven digits of the phone number should be concatenated into one string. Both the area code and the phone number should be printed. Then add the exception handling exceptions for the same problem. | 7 | | L2&3 |
| 12 (a) | Assume you have a text file that contains student's records. Each line contains a record that has the following data: a student's ID(int), name(string) and three grades(double) separated by space characters. Write an application to read this file and create a new file to save the same data using object serialization. Then, display information about whether the file exists, whether the file is readable, or writable, the type of file and the length of the file in bytes. | 13 | 2 | L3 |
| | **OR** | | | |
| 12 (b) | Design a connection oriented Chat Application using Java socket programming, along with a Graphical User Interface (GUI) for the server and client. The chat application should allow real-time communication between a server and multiple clients, with a user-friendly interface. | 13 | 2 | L3 |
| 13 (a) | Design a registration form for an email account, including all necessary validations using JavaScript and accessing its DOM Elements using Java Script and JQuery Objects | 13 | | L3 |
| | **OR** | | | |
| 13 (b) | Build an online shopping website using XML and JSON based AJAX and give Dynamic Access and Manipulate the Web Pages using Java Script and JQuery | 13 | 3 | L3 |
| 14 (a) | Write a program that allows the user to select a favorite programming language and post the choice to the server. The response is a web page in which the user can click a link to view a list of book recommendations. The cookies previously stored on the client are read by the servlet and form a web page containing the book recommendation. | 13 | 4 | L3 |
| | **OR** | | | |
| 14 (b) | Explain JSF architecture with its features and develop a JSF program to display the grade of a student by accepting the marks of five subjects. | 13 | 4 | L3 |
| 15 (a) | Explain Node JS programming fundamentals and develop a | 13 | 5 | L3 |

| Q.No. | Questions | Marks | CO | BL |
|---|---|---|---|---|
| ● | responsive website for Online Bus Ticket Booking using Node JS | | | |
| | OR | | | |
| 15 (b) | Explain all J2ME Basics with its architecture and components and write a simple MIDlet code to print some message on the mobile phone. | 13 | 5 | L3 |

## PART- C(1x 15=15Marks)
(Q.No.16 is compulsory)

| Q.No. | Questions | Marks | CO | BL |
|---|---|---|---|---|
| 16. | Develop a Railway Reservation System with a web-based reservation form that enables users to book train tickets and check seat availability. The form should include the following fields:<br>• Train ID<br>• Train Name<br>• Journey Date<br>• Class (e.g., Sleeper, AC, etc.)<br>• Number of Seats to Book<br>Frontend Requirements:<br>a. Form Validation & AJAX Submission: Use JavaScript for form validation (e.g., no past dates) and submit data asynchronously to a Servlet backend without reloading the page.<br>b. Real-Time Seat Availability Check: Enable users to check seat availability by Train ID, Class, and Journey Date, updating the display dynamically via AJAX.<br>c. Session and Cookie Management: Store user preferences (like last selected Train Class and Train ID) in cookies and prefill these values on future visits.<br>Backend Requirements:<br>a. Servlets & Database Integration: Use Servlets to handle form submissions, store reservations, update seat availability, and process AJAX requests for seat availability.<br>b. Session Handling for Login: Implement session management to keep users logged in, ensuring that only logged-in users can make reservations, and manage session handling for user interactions. | 15 | 3,4,5 | L3,5 |