Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

End Term (Even) Semester Examination May-June 2025

Roll no.....

Name of the Program and semester: M.Tech CSE Part-Time IV semester
Name of the Course: Full Stack Web and Multiplatform Mobile App Development
Course Code: MCS 427

Time: 3 hour Maximum Marks: 100

Note:

(i) All the questions are compulsory.
(ii) Answer any two sub questions from a, b and c in each main question.
(iii) Total marks for each question is 20 (twenty).
(iv) Each sub-question carries 10 marks.

Q1. (2X10=20 Marks)

a. What are Meta tags and Character Entities in HTML? How do they influence browser rendering and search engine behavior? (CO1)

b. Create a responsive HTML5 web page using Bootstrap that includes a navigation bar, image gallery, and contact form. Add appropriate CSS classes. (CO1)

c. Analyze the evolution of web page structure from frames and frame sets to HTML5 layout elements like <header>, <section>, and <footer>. What are the advantages of using semantic elements? (CO1)

Q2. (2X10=20 Marks)

a. Differentiate between JavaScript and jQuery. How does jQuery simplify DOM manipulation? Provide suitable code examples. (CO2)

b. Develop a DHTML application that uses HTML, CSS, and JavaScript to create a dynamic to-do list where users can add, mark, and remove tasks. (CO2)

c. Analyze the role of DOM in dynamic web applications. How does JavaScript interact with DOM elements to change content and structure at runtime? (CO2)

Q3. (2X10=20 Marks)

a. Explain the difference between GET and POST methods in PHP form handling. Provide scenarios where each should be used. (CO3)

b. Write a PHP program that accepts a user's name and email via an HTML form, stores the data in a MySQL database, and displays the stored records. (CO3)

c. Evaluate the benefits and drawbacks of using PHP for server-side development compared to newer frameworks like Node.js or Django. (CO3)

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Q4. (2X10=20 Marks)

a. What are the main building blocks of an Android application? Briefly explain the roles of Activity, Service, and Content Provider. (CO4)

b. Create a simple Android application that uses SharedPreferences to save and display user settings like username and theme preference. (CO4)

c. Analyze the relationship between the Android Activity lifecycle and memory management. How can improper handling of lifecycle methods lead to app crashes or leaks? (CO4)

Q5. (2X10=20 Marks)

a. What is the purpose of using sensors like accelerometer and gyroscope in mobile apps? Provide real-world use cases. (CO5)

b. Design an Android application that tracks user location using the LocationManager API and displays coordinates on screen. (CO5)

c. Evaluate the importance of mobile app testing frameworks such as JUnit and Robotium. How do they differ in scope and effectiveness? (CO5)