

CENTRE FOR DISTANCE AND ONLINE EDUCATION

BHARATHIDASAN UNIVERSITY

Tiruchirappalli – 620024

MASTER OF COMPUTER APPLICATIONS

[2024 ONWARDS]

SECOND SEMESTER - ASSIGNMENT TOPICS

P24CDMCA4 - Emerging Technologies In Data Processing

Assignment topic 1 (any two from the following)

1. Explain the advantages of using a Database Management System (DBMS) over traditional file systems. Provide examples to support your answer.
2. Describe the differences between centralized, client-server, and distributed database architectures. Discuss one advantage and one disadvantage of each type
3. Write an SQL query to create a table for storing student details (StudentID, Name, Age, Department). Include appropriate data types, a primary key, and a foreign key linking the Department to another table.

Assignment topic 2 (any two from the following)

1. What is XML Schema? How is it used to validate XML documents? Provide a simple XML and its corresponding schema for a "Book" entity containing "Title", "Author", and "Price"
2. What is the CAP theorem in the context of NoSQL databases? Briefly explain each component and its implications for database design.
3. What is Hadoop Distributed File System (HDFS)? List its key features and explain why it is suitable for managing large datasets

P24CDMCA5 - Advanced Operating Systems

Assignment topic 1 (any two from the following)

1. Explain the different process synchronization techniques used in multiprocessor operating systems and their importance in system performance
2. Describe the concept of mutual exclusion in distributed operating systems. Discuss any one algorithm for achieving mutual exclusion in such systems.
3. What is distributed shared memory? Explain its advantages and challenges with an example?

Assignment topic 2 (any two from the following)

1. What are the primary requirements of a database operating system? Discuss how concurrency control algorithms address these requirements
2. Compare ARM and Intel architectures in the context of mobile operating systems. Highlight their strengths and weaknesses.
3. What is power management in mobile operating systems? Briefly explain its significance and one technique used for effective power management.

P24CDMCA6 - Computer Graphics And Animation

Assignment topic 1 (any two from the following)

1. List the steps of the DDA Line Drawing Algorithm and describe its application in graphics. Provide an example.
2. Illustrate the process of window-to-viewport coordinate transformation with a simple example. Why is it important in computer graphics?
3. Outline the key differences between polygon surfaces and quadric surfaces as three-dimensional object representations.

Assignment topic 2 (any two from the following)

1. What are the principles of animation? Highlight any three principles with examples from real-world applications.
2. Summarize the steps involved in creating view-dependent animation from sketches. Why is recovering the camera an important step?
3. What are the challenges in multimodal authoring of animations? Discuss one solution to address these challenges.

P24CDMCAE2 - Internet Of Things

Assignment topic 1 (any two from the following)

1. Identify the enabling technologies of IoT and describe their role in creating IoT systems. Provide a practical example for one of these technologies.
2. Describe the IETF architecture for IoT and explain how it contributes to the development of IoT systems.
3. List and explain the key features of the Zigbee architecture. How does it ensure efficient communication in IoT systems?

Assignment topic 2 (any two from the following)

1. Differentiate between the Web of Things (WoT) and the Internet of Things (IoT). Provide examples to highlight their unique characteristics.
2. What is the role of IoT in resource management? Discuss one method, such as clustering or synchronization, with an example
3. What is a smart grid? Briefly explain its role in improving electricity management using IoT?

P24CDMCABC3 - Web Design

Assignment topic 1 (any two from the following)

1. What is the client-server model in networking? Describe its role in internet communication with an example.
- 2 List the primary HTML tags used for structuring a web document. Create a basic HTML code to display a heading, a paragraph, and a list.
3. What is the purpose of frames in HTML? Write a simple HTML code snippet to divide a web page into two frames.

Assignment topic 2 (any two from the following)

1. What are the uses of dialog boxes in JavaScript? Write an example using alert(), confirm(), and prompt().
2. Explain how JavaScript handles events. Write an example to demonstrate an event listener for a button click?
3. What is the purpose of the document.getElementById() method in JavaScript? Write an example to change the text of an HTML element using this method.

P24CDMCABC4 - Digital Electronics

Assignment topic 1 (any two from the following)

1. List the general characteristics of TTL, ECL, and CMOS logic families. Mention one advantage of each.
- 2 Convert the decimal number 25 to binary and hexadecimal formats. Explain your steps.
3. State De Morgan's theorems and verify one of them using a truth table.

Assignment topic 2 (any two from the following)

1. Draw the block diagram of a Half Adder and explain its truth table.
2. Describe the working of an RS flip-flop with the help of its truth table
3. What is edge triggering in flip-flops? Explain its importance in sequential circuits.