

**ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY (A)**  
M.Tech – II Semester End Examinations Regular (ACETR23) – JULY 2024

**MEAN STACK TECHNOLOGIES**  
(Computer Science and Engineering)

**Time: 3 hours****Max. Marks: 75**

**Answer ONE question from each unit**

**All Questions Carry Equal Marks**

**All parts of the questions must be answered at one place only**

**UNIT – I**

- 1 a Make use of different types of CSS styles to HTML elements with example programmes L3 CO1 [8M]  
b Explain the following protocols L2 CO1 [7M]  
i) HTTP ii) SMTP

**OR**

- 2 a What are the main features of HTML5 L2 CO1 [8M]  
b With an example explain the anatomy of a web page. L2 CO1 [7M]

**UNIT – II**

- 3 a What are the differences between Java and JavaScript L2 CO2 [8M]  
b Utilize DTD and Schema to validate XML document. L3 CO2 [7M]

**OR**

- 4 a What is the 'this' keyword in JavaScript? L2 CO2 [8M]  
b Explain different types of objects available in java script. L2 CO2 [7M]

**UNIT – III**

- 5 a Develop single page application in Angular JS with example programmes. L3 CO3 [8M]  
b What is the role of a web framework in Node.js development? Briefly explain why Express.js is a popular choice for building web applications L3 CO3 [7M]

**OR**

- 6 a Make use of MVC architecture in Express JS to explain the usage with neat diagram. L3 CO3 [8M]  
b Explain about different modules available in Node JS? L2 CO3 [7M]

**UNIT – IV**

- 7 a Explain the concept of the Uniform Interface in RESTful web services. How does it contribute to the scalability of web applications? L2 CO4 [8M]  
b Discuss the importance of designing meaningful URIs in RESTful web services. Provide examples of good URI design and explain how they enhance the usability of APIs. L2 CO4 [7M]

**OR**

- 8 a Describe the role of Web Linking (Hypermedia) in RESTful APIs. How does it improve discoverability and navigability in client-server interactions? L2 CO4 [8M]  
b Make use of Restful API architecture to explain the usage with neat diagram. L3 CO4 [7M]

**(P.T.O)**

**UNIT – V**

- 9 a Compare MongoDB with traditional relational databases (SQL) in terms of data structure, querying mechanisms, and scalability. Discuss scenarios where MongoDB might be a better choice. L2 CO5 [8M]  
b Explain the key components of MongoDB architecture. How does BSON (Binary JSON) play a role in data storage within MongoDB? L2 CO5 [7M]

**OR**

- 10 a Describe some of the key features of MongoDB like scalability, flexibility, and indexing. L2 CO5 [8M]  
b Demonstrate the process of creating a new database and a collection within MongoDB. Briefly explain the functionalities of each command. L2 CO5 [7M]

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M.Tech II Semester (ACETR23)

**(MEAN Stack Technologies)****Time: 3 hours****Max. Marks: 75****Answer ONE question from each unit****All Questions Carry Equal Marks****All parts of the questions must be answered at one place only****UNIT – I**

- 1 a Define CSS. Explain inline, internal, external and embedded style sheets with examples. L1 CO1 [8M]
- b What is the document type definition (DTD)? Describe the approach to declare elements, entities and attributer. L1 CO1 [7 M]
- OR**
- 2 a Write CSS code that defines five classes of paragraph with different background, color, margins, padding and border style. L1 CO1 [8 M]
- b Distinguish between DOM and SAX approaches. L4 CO1 [7 M]

**UNIT – II**

- 3 a Write about the various Objects used in Java script. L1 CO2 [8 M]
- b Explain AngularJS Form Validation with Example L2 CO2 [7 M]
- OR**
- 4 a Write a java script that inputs a line of text, tokenizes it with String method split() and displays the tokens in reverse order. L1 CO2 [8 M]
- b Illustrate Single Page Application development using Angular JS L2 CO2 [7 M]

**UNIT – III**

- 5 a What are Node.js modules and how do they facilitate modular development? L1 CO3 [8 M]
- b Explain the concept of routing in Express.js. How does Express handle HTTP requests and route them to the appropriate handlers? L2 CO4 [7 M]
- OR**
- 6 a Explain Node.js Process model with a neat diagram L5 CO3 [8 M]
- b Discuss the Model-View-Controller (MVC) architecture pattern and explain how it can be implemented in an Express application. L2 CO4 [7 M]

Page 1 of 2

**UNIT – IV**

- 7 a Explain the process of working with files in a React.js application. How can files be imported and utilized within the project structure? L2 CO5 [8 M]
- b Illustrate the concept of "children" in React components. How are children components passed and accessed within a parent component? L2 CO5 [7 M]
- OR**
- 8 a Explain the concept of Web Linking in the context of RESTful APIs. How does it contribute to the discoverability of resources? L5 CO5 [8 M]
- b What is the concept of the Virtual DOM in React.js? How does React leverage the Virtual DOM for efficient rendering of UI components? L2

**UNIT – V**

- 9 a List the key features of MongoDB. Highlight how these features make MongoDB suitable for modern web applications. L4 CO6 [7 M]
- b Explain the process of deploying a MEAN stack (MongoDB, Express.js, Angular, Node.js) application on a cloud platform like AWS or Heroku. Include details on environment setup, configuring the cloud service, deploying the application, and managing the deployment. L5 CO6 [7 M]
- OR**
- 10 a Explain the architecture of MongoDB. Include details on its components such as databases, collections, and documents, and discuss how data is stored and accessed in MongoDB. L5 CO6 [8 M]
- b Explain the steps involved in hosting a static website using a web hosting service. Discuss domain registration, DNS configuration, and uploading website files to the hosting server. L5 CO6 [7 M]