KUMARAGURU
college of technology
character is life

Register Number:……

**MCA DEGREE EXAMINATIONS: NOV/DEC 2024**

(Regulation 2020)

Third Semester

**MASTER OF COMPUTER APPLCATIONS**

P20CAE0252: Full stack Software Development

**COURSE OUTCOMES**

**CO1:** Create a Web Server with Node.js for a simple application.

**CO2:** Develop a Web Application in Express.js Framework.

**CO3:** Build an application with Node.js and MongoDB.

**CO4:** Deploy the developed application in GitHub repository.

**Time: Three Hours** **Maximum Marks: 100**

**Answer all the Questions: -**

**PART A (10 x 2 = 20 Marks)**

| | | | |
|---|---|---|---|
| 1. | What is the purpose of HTML in web development? | CO4 | [$K_2$] |
| 2. | How does JavaScript enhance user interaction on a webpage? | CO4 | [$K_2$] |
| 3. | How does Node.js handle asynchronous operations? | CO1 | [$K_2$] |
| 4. | What is NPM and what is its primary role in Node.js development? | CO1 | [$K_1$] |
| 5. | What is callback programming in JavaScript? | CO1 | [$K_2$] |
| 6. | How can you handle errors in callback functions? | CO1 | [$K_2$] |
| 7. | What are HTTP methods? Give two examples. | CO2 | [$K_2$] |
| 8. | What is a web framework? | CO2 | [$K_2$] |
| 9. | What is NoSQL, and how does it differ from SQL databases? | CO3 | [$K_2$] |
| 10. | Define a schema in the context of MongoDB. | CO3 | [$K_2$] |

**PART B (6 x 5 = 30 Marks)**

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|---|---|---|---|
| 11. | Explain the differences between the MERN and MEAN stacks. | CO4 | [$K_2$] |
| 12. | Provide an overview of the .NET framework and discuss its components. | CO4 | [$K_2$] |
| 13. | Describe how would implement routing in a Node.js web server. | CO1 | [$K_3$] |

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|---|---|---|---|
| 14. | Explain any two advantages and disadvantages of asynchronous I/O compared to synchronous I/O in Node.js. | CO3 | [$K_2$] |
| 15. | Describe the structure and key features of the Express Web Application Framework. | CO2 | [$K_2$] |
| 16. | What is Mongoose? Explain its role in building MongoDB schemas and models in a Node.js application. | CO3 | [$K_2$] |

**Answer any FIVE Questions**

**PART C (5 x 10 = 50 Marks)**

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|---|---|---|---|
| 17. | Describe the process of creating a responsive layout using Bootstrap. Give example. | CO4 | [$K_3$] |
| 18. | What is GitHub? Describe how to set up a new repository on GitHub, including steps for initializing a local repository, linking it to GitHub, and pushing changes. | CO4 | [$K_3$] |
| 19. | Create a Node.js script that sets up a basic HTTP server and demonstrates handling different types of HTTP requests (GET, POST) with appropriate responses. Explain the code and how the server processes each request type. | CO1 | [$K_4$] |
| 20. | Explain how to handle errors in Node.Js applications using try-catch blocks and proper error propagation mechanisms. Give example. | CO1 | [$K_4$] |
| 21. | Explain how to build a RESTful API using Express. Describe the key principles of REST architecture and demonstrate how to handle CRUD operations in an API. | CO2 | [$K_3$] |
| 22. | Discuss in detail the steps involved in connecting a Node.js application to a MongoDB database. Explain how to establish a connection and handle errors in web development environments. | CO3 | [$K_5$] |

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