Reg. No. : | | | | | | | | | | | | |

Question Paper Code: UD706

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Professional Elective

Computer Science and Business Systems

21CBV706 MERN STACK WEB DEVELOPEMENT

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	Describe the primary function of a web server in web development.	CO2- App
2.	What is the significance of MongoDB in the MEAN and MERN stacks?	CO1-U
3.	Explain the concept of an event emitter in Node.js.	CO1-U
4.	How do you create a simple HTTP server in Node.js?	CO2- App
5.	How do you create a database in MongoDB?	CO2- App
6	Explain the purpose of MongoDB user accounts.	CO1-U
7	How do you install Express.js in a Node.js project?	CO2- App
8	How do you send a JSON response in Express.js?	CO2- App
9	How do you define a state in a React component?	CO1-U
10	What command do you use to install React Router?	CO1-U

PART – B (5 x 16= 80 Marks)

11.	(a)	Explain the role of Express.js in the Node.js ecosystem. Discuss how Express.js simplifies server-side development and provide a detailed example of a RESTful API built using Express.js.	CO1-U	(16)
		Or		
	(b)	Compare and contrast the MEAN (MongoDB, Express, Angular, Node.js) and MERN (MongoDB, Express, React, Node.js) stacks. Include a discussion on the benefits and drawbacks of each stack, and scenarios where one might be preferred over the other.	CO1-U	(16)

12.	(a)	Describe the step-by-step process of installing Node.js and setting up a new Node.js project. Include the creation of a package.json file and installing necessary packages.	CO2- App	(16)
		Or		
	(b)	Discuss the architecture of Node.js and its event-driven, non-blocking I/O model. Explain how this architecture makes Node.js suitable for building scalable network applications.	CO2- App	(16)
13.	(a)	Illustrate the process of connecting to a MongoDB database from a Node.js application. Include code examples using the mongodb or mongoose package to demonstrate basic CRUD operations.	CO2- App	(16)
		Or		
	(b)	Explain the concepts of collections and documents in MongoDB. How do they differ from tables and rows in relational databases? Include examples of how to create, read, update, and delete documents.	CO2- App	(16)
14.	(a)	Describe how routing is configured in Express.js. Provide examples of different types of routes (GET, POST, PUT, DELETE) and explain how route parameters and query parameters can be handled.	CO1-U	(16)
		Or		
	(b)	Explain the process of setting up an Express.js application from scratch. Include steps for initializing the project, installing dependencies, and creating a basic server that listens on a specified port.	CO1-U	(16)
15.	(a)	Explain the architecture of the MERN stack. Discuss how MongoDB, Express, React, and Node.js work together to create a full-stack web application. Include a diagram to illustrate the data flow between the components.	CO1-U	(16)
		Or		
	(b)	Discuss the concept of React components. Explain the differences between functional and class components, and provide examples of each. Include a discussion on the lifecycle methods of class components.	CO1-U	(16)