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Bengaluru

Mid Term Examinations - October 2026

Date: 08/10/2026 **Time:** 09:30 AM - 11:00 AM

Course Code: CSA4504 **Course Name:** MERN Full Stack Development

Semester: Third Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2
Marks	90	90

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	List the three tiers of the MERN architecture and name the technology used at each tier.	2	CO1	BT1
2	What is the purpose of the package.json file in a Node.js project?	2	CO2	BT1
3	Differentiate between fs.readFile() and fs.readFileSync() in Node.js.	2	CO2	BT1
4	What does MVC stand for? Briefly state what each layer represents in any tech stack.	2	CO1	BT1
5	Define middleware in Express.js and state its role in the request–response cycle.	2	CO2	BT2

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Explain the three-tier MERN architecture (React, Node.js/Express, MongoDB) with a diagram showing the communication flow. Explain how MVC maps onto this architecture.	10	CO1	BT2
7	Explain the five-stage anatomy of a web request using a real-world example (e.g., placing an order on a food-delivery app). Describe the four core responsibilities of backend services in this scenario.	10	CO1	BT2

PART C: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
8	Discuss the evolution of web architectures from the Static Era through the Dynamic Era to the SPA Revolution, and explain how this evolution led to the adoption of the MERN stack.	10	CO1	BT2
9	Using the "Online Course Registration Portal" case study, explain the responsibility of each MERN layer (React, Express + Node.js, MongoDB) along with example features for each layer.	10	CO1	BT3

PART D: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
10	Explain the Node.js single-threaded event loop architecture, describing the roles of the call stack, event/callback queue, libuv and the thread pool.	10	CO2	BT2

11	Write a Node.js program using the built-in http module to create a basic server that listens on port 3000 and responds with "Hello, MCA Students!". Explain each line of the code.	10	CO2	BT3

PART E: Answer Any 1 Following Questions. 10 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
12	Explain RESTful API design principles. List the standard HTTP methods used for CRUD operations along with their corresponding endpoints for a "students" resource.	10	CO2	BT3
13	Write Express.js code to implement a complete CRUD REST API for a "students" resource, including GET, POST, PUT and DELETE routes.	10	CO2	BT3