Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	6
Subject Code	PEIT-109	**Subject Title**	Mean Full Stack Web Development
Mid Semester Test (MST) No.	1	**Course Coordinator(s)**	Dr. Palwinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST		**Uni. Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Describe JavaScript closures with example.	CO2, L2	2
Q2	Demonstrate how to render views in express file?	CO1, L3	2
Q3	Discuss the process of implementation of MVC Pattern. Also explain Vertical and horizontal folder structure with example.	CO1, L6	4
Q4	Enlist the technologies that make up the MEAN stack? Explain in detail.	CO1, L2	4
Q5	Design a common MEAN stack architecture using a API built in Node.js, Express, and MongoDB?	CO2, L6	4
Q6	Creating a new document/database using MongoDB and preform CURD Operations like insert, update, read and delete data with examples.	(CO3, CO4), L6	8

Course Outcomes (CO) *Students will be able to*	
1	Develop web applications using the concept MEAN stack development.
2	Create and design web applications using Node.js and Express framework.
3	Apply the knowledge of AngularJS and MongoDB for web page designing.
4	Identify, formulate and solve engineering problems in the area of dynamic responsive web applications
5	Function on multi-disciplinary teams through web application creation

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	6
Subject Code	PEIT-109	**Subject Title**	Mean Full Stack Web Development
Mid Semester Test (MST) No.	2	**Course Coordinator(s)**	Dr. Palwinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	15 May, 2025	**Uni. Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Elaborate the concept of data binding in Angular?	CO3, L2	2
Q2	Demonstrate the use of directives in an AngularJS web application?	CO3, L3	2
Q3	Illustrate, How the components of the simple Angular app fit and work together?	CO4, L3	4
Q4	Discuss the process to handle forms and submission of data in Angular?	CO4, L6	4
Q5	Demonstrate different levels of services in Angular with example.	CO2, L4	4
Q6	Design a single-page modular web application with Angular using navigation and routing parameters?	(CO3, CO4), L6	8

Course Outcomes (CO)

Students will be able to

1	Develop web applications using the concept MEAN stack development.
2	Create and design web applications using Node.js and Express framework.
3	Apply the knowledge of AngularJS and MongoDB for web page designing.
4	Identify, formulate and solve engineering problems in the area of dynamic responsive web applications
5	Function on multi-disciplinary teams through web application creation

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]
Uni. Roll No. .....

[Total No. of Pages: 2]

Program: B.Tech. (Batch 2018 onward)
Semester: 6
Name of Subject: Mean Full Stack Web Development
Subject Code: PEIT-109
Paper ID: 17209

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Define the term *full-stack development* and identify one of its key advantages.
b) List the components of the MEAN stack used in web application development.
c) Name any two features of Express.js.
d) State the use of Node Package Manager (NPM) in a Node.js environment.
e) Compare the roles of horizontal and vertical folder structure in Express applications.
f) Catcgorize types of files rendered statically in an Express web app and justify their use.

Part – B **[Marks: 04 each]**

Q2. Identify the purpose of JavaScript closures in Node.js programming.
Q3. Illustrate the use of the MVC pattern in developing Node.js applications.
Q4. Describe the process of installing MongoDB and list two of its key features.
Q5. Differentiate between AngularJS modules and components using suitable examples.
Q6. Analyze the two-way data binding concept in AngularJS.
Q7. Evaluate the use of Mongoose in defining MongoDB schemas.

P.T.O.

Part – C

[Marks: 12 each]

Q8. Design a Node.js and Express-based web application to display product listings. Use appropriate tokens such as keywords, identifiers, constants, and operators in your implementation. Also, explain the importance of operator precedence and associativity with examples.

OR

Develop a code snippet in which static files like CSS and images are served using Express. Identify punctuation symbols used and state their function in the code.

Q9. Construct a REST API using Express that performs create, read, update, and delete (CRUD) operations on MongoDB. Integrate this API with an Angular frontend and demonstrate a complete data flow using Angular components.

OR

Create an Angular application using TypeScript that uses routing, component-based structure, and modular design. Assess how form handling and data submission improve performance in single-page applications.

****