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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech Integrated

SEM: VI - THEORY EXAMINATION (2025 - 2026)

Subject: Web Development using MEAN Stack

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C**. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

20

1. Attempt all parts:-

- (1.1) The following statement about REST is true CO1, K1 1
- (a) REST is web standards based architecture and uses HTTP Protocol for data communication.
- (b) It revolves around resource where every component is a resource and a resource is accessed by a common interface using HTTP standard methods.
- (c) REST was first introduced by Roy Fielding in 2000.
- (d) All of the Mention
- (1.2) The number of Node object methods available is: CO1, K1 1
- (a) 21
- (b) 18
- (c) 19
- (d) 20
- (1.3) While configuring Express, you need JSON parsing using suitable middleware. CO2, K1 1
- (a) express.json
- (b) express.static
- (c) express.router
- (d) express.config
- (1.4) You want to partially update user data using the correct method. CO2, K1 1
- (a) PUT
- (b) PATCH
- (c) GET

- (d) POST
- (1.5) Define export a module? CO3, K1 1
- (a) include
 - (b) export
 - (c) send
 - (d) share
- (1.6) Best choice for reusable logic? CO3, K2 1
- (a) Abstract class
 - (b) Variable
 - (c) Constant
 - (d) Loop
- (1.7) Which directive initializes AngularJS app? CO4 , K1 1
- (a) ng-start
 - (b) ng-init
 - (c) ng-app
 - (d) ng-main
- (1.8) Explain the symbol used to apply a filter condition.CO4,K2 1
- (a) | symbol
 - (b) & symbol
 - (c) # symbol
 - (d) % symbol
- (1.9) MongoDB stores data in the form of: CO5, K1 1
- (a) Tables
 - (b) Rows
 - (c) Documents
 - (d) Columns
- (1.10) Schema in Mongoose defines: CO5, K1 1
- (a) UI
 - (b) Structure of documents
 - (c) Routes
 - (d) API

2. Attempt all parts:-

- (2.1) Difference between synchronous and asynchronous functions in Node.js. CO1, K2 2
- (2.2) Analyze the purpose of `express.urlencoded()` middleware in form handling. CO2, K2 2
- (2.3) Develop a module using import and export statements. CO3, K3 2
- (2.4) Create a dropdown list in AngularJS using `ng-options` and illustrate it with an example. CO4, K3 2
- (2.5) Explain the difference between SQL and NoSQL databases. CO5, K1 2

SECTION-B

30

Answer any one of the following:-

- | | | |
|-------|--|---|
| (3.1) | Explain callback functions and asynchronous programming in Node.js with examples. CO1,K2 | 6 |
| (3.2) | Outline the installation process of Node.js and explain its built-in packages. CO1,K2 | 6 |

Answer any one of the following:-

- | | | |
|-------|---|---|
| (3.3) | Analyze how req.params, req.query, and req.body are used in Express applications. CO2, K2 | 6 |
| (3.4) | Examine Mongoose document modeling and analyze the difference between Schema and Model. CO2, K2 | 6 |

Answer any one of the following:-

- | | | |
|-------|--|---|
| (3.5) | Write a program to demonstrate arrow functions and compare them with normal functions. CO3, K4 | 6 |
| (3.6) | Implement a program using an abstract class and inheritance to demonstrate their usage. CO3,K3 | 6 |

Answer any one of the following:-

- | | | |
|-------|---|---|
| (3.7) | Summarize Dependency Injection in AngularJS and explain how it works along with its advantages. CO4, K2 | 6 |
| (3.8) | Apply the concepts of module, controller, and view to illustrate the lifecycle of an AngularJS application. CO4, K3 | 6 |

Answer any one of the following:-

- | | | |
|--------|---|---|
| (3.9) | Differentiate and analyze collections and documents in MongoDB with respect to their structure and usage. CO5, K4 | 6 |
| (3.10) | Explain data modeling concepts in MongoDB. CO5, K2 | 6 |

SECTION-C 50

4. Answer any one of the following:-

- | | | |
|-------|--|----|
| (4.1) | List six Node.js in-built packages and describe their purpose. CO1, K2 | 10 |
| (4.2) | Outline the concept of the event loop in Node.js and its working process.CO1, K2 | 10 |

5. Answer any one of the following:-

- | | | |
|-------|---|----|
| (5.1) | Implement an Express application to start a server on port 3000 and display “Server Running”. CO2, K3 | 10 |
| (5.2) | Apply Pug templating to create a view and render dynamic data using <code>res.render()</code> . CO2, K3 | 10 |

6. Answer any one of the following:-

- | | | |
|-------|--|----|
| (6.1) | Apply TypeScript to develop a simple AngularJS application, demonstrating its features, advantages, and role in development. CO3, K3 | 10 |
| (6.2) | Develop a class using getters and setters and examine how they improve data security and encapsulation. CO3, K4 | 10 |

7. Answer any one of the following:-

- | | | |
|---|---|----|
| (7.1) | Create a Single Page Application using AngularJS that demonstrates MVC architecture by displaying student details using Model, View, and Controller. CO4, K3 | 10 |
| (7.2) | Form Validation System
A registration form requires name, email, and password validation. Design AngularJS form validation rules and explain error handling. CO4, K4 | 10 |
| 8. Answer any <u>one</u> of the following:- | | |
| (8.1) | Develop a RESTful API for managing student records. CO5, K3 | 10 |
| (8.2) | Create a data model for a blogging platform using MongoDB. CO5, K4 | 10 |

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