MASTER OF SCIENCE (INFO TECH & COM APP)-CS Examination

M.SC. (IT & CA) CS SEMESTER-3 NOVEMBER 2025 (Regular) NOVEMBER - 2025

CS – 14 NODE JS

Faculty Code : 017

Subject Code : 24CS-MSIT-CO-03-01002

Time : 2.30 Hours]   [Total Marks : 70

Instructions: All questions are compulsory.

Q.1 (A) Answer the following: 4

1   The _____ global object is used in a Node.js file to print output to the terminal.

2   Node.js uses a single-threaded, event-driven, and _____ I/O model to handle concurrency efficiently.

3   _____ is a browser-side technique for making asynchronous requests, whereas Node.js is a server-side runtime.

4   Node.js uses a blocking I/O model, meaning it must wait for a file operation or database query to finish before moving to the next task. True or False?

(B) Answer in brief (Any one out of two)   2

1   What is the purpose of the Node.js REPL environment?

2   What is the core distinction between Node.js and JavaScript?

(C) Answer in detail (Any one out of two)   3

1   List three advantages or features of Node.js.

2   Write the difference between Node.js and AJAX.

(D) Write a note on (Any one out of two)   5

1   Explain Node.js Process Model.

2   Differentiate between Node.js, JQuery, and Angular JS.

Q.2 (A) Answer the following: 4

1   _____ is the built-in Node.js module used to create a simple web server.

2   Modules created by the user are referred to as _____ modules.

3   NPM stands for _____.

4   Core Modules in Node.js must be explicitly installed using NPM before they can be used. True or False?

(B) Answer in brief (Any one out of two)   2

1   What is the use of the Buffer class in Node.js?

2   How to access the global scope in a Node.js file?

(C) Answer in detail (Any out of two)　　　　　　　　　　　　　　　　3

1　Differentiate between local, core, and third-party modules.

2　What is the purpose of the package.json file?

(D) Write a note on (Any one out of two)　　　　　　　　　　　　　　5

1　List and explain types of modules with example.

2　Describe the steps to create a custom module and use it in another file.

Q.3　(A) Answer the following:　　　　　　　　　　　　　　　　　　4

1　The method fs.readFile() is used to _____ a file asynchronously in Node.js.

2　The _____ method is used to open a file in Node.js.

3　The _____ module is used to handle file system operations like reading, writing, and deleting files.

4　Directories cannot be created using Node.js. True or False?

(B) Answer in brief (Any one out of two)　　　　　　　　　　　　　　2

1　How does fs.writeFile() work in Node.js?

2　What is the purpose of the fs.unlink() method in Node.js?

(C) Answer in detail (Any one out of two)　　　　　　　　　　　　　　3

1　Describe how the url module can help serve files in an HTTP server.

2　What is the difference between fs.writeFile() and fs.appendFile()?

(D) Write a note on (Any one out of two)　　　　　　　　　　　　　　5

1　Describe the various file operations supported by the fs module with examples.

2　Explain how to handle HTTP requests in Node.js to serve files based on URLs.

Q.4　(A) Answer the following:　　　　　　　　　　　　　　　　　　4

1　To emit an event, the _____ method is used in the EventEmitter class.

2　In JavaScript, the value of _____ refers to the object that is executing the current function.

3　In Node.js, error events should always be handled using a listener for the _____ event.

4　The EventEmitter.emit() method is used to register event listeners. True or False?

(B) Answer in brief (Any one out of two)　　　　　　　　　　　　　　2

1　What is the purpose of the emit() method in EventEmitter?

2　How is the once() method different from on()?

(C) Answer in detail (Any one out of two)　　　　　　　　　　　　　　3

1　Write a basic Node.js statement to connect to a MySQL database.

2　Compare synchronous and asynchronous function calls in Node.js.

(D) Write a note on (Any one out of two)　　　　　　　　　　　　　　5

1　Explain the EventEmitter class with example.

2　Describe how to connect Node.js to a relational database, and perform INSERT and SELECT operations.

Q.5 (A) Answer the following: 4

1 The express.static() middleware is used to serve _____ files.

2 _____ engines are used to create dynamic HTML content.

3 _____ is used to send a static file as a response in Express.

4 Route parameters are used to capture dynamic values in the URL. True or False?

(B) Answer In brief (Any one out of two)   2

1 What is the purpose of Express in a Node.js application?

2 What is the use of res.sendFile()?

(C) Answer in detail (Any one out of two)   3

1 Describe how to handle file uploads in Express using multer.

2 How to use express.static() to serve static files?

(D) Write a note on (Any one out of two)   5

1 What are templates in Express? Explain how to configure and use a template engine like EJS or Pug to render dynamic HTML pages.

2 Explain how routing works in Express, including route parameters, multiple callbacks, and chaining handlers.