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End Semester Examination, December 2024
B.TECH CSE (FSD) –III Semester
BACKEND DEVELOPMENT WITH NODEJS (ENSP201)

Time: 2.5 hrs.

Max Marks: **50**

Note: *All Questions are compulsory. Marks are indicated against each question.*

PART-A

Q.1 *Attempt any five questions:*

2x5

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|--|-----------------------|
| (a) First Question:
What is module in Node JS? Explain the different types of Modules in Node JS? | [CO-2][L-2] 2 |
| (b) Second Question:
What is REPL? Explain with one example? | [CO-1] [L-1] 2 |
| (c) Third Question:
Explain the difference between the Asynchronous and Synchronous functions() with an example? | [CO-1] [L-2] 2 |
| (d) Fourth Question:
What is Express Router? What do we need it to route the requests in Node JS? | [CO-1] [L-1] 2 |
| (e) Fifth Question:
What is REST API? Explain the different types of REST HTTP methods? | [CO-1] [L-2] 2 |
| (f) Sixth Question:
Explain the Slicing and Copying in Buffers? Brief with one example as well. | [CO-1] [L-3] 2 |
| (g) Seventh Question:
What is the difference between the fs.readFileSync() and fs.readFile()? | [CO-1] [L-3] 2 |

PART-B

Q.2 (a)

What is Express JS? What are the features of the Express JS? (min 5 features).What is routing in Express JS? Please explain with one demo program example in detail?

[CO-5][L-3]
10

OR

(b)

Create a simple Express.js application that serves the following routes:

[CO-5][L-3] 10

- A **GET** route at **/home** that returns a welcome message "Welcome to Express.js!"
- A **POST** route at **/user** that returns a JSON object with your name and age.

Q.3 (a)

Write a Node.js program using the EventEmitter class to trigger an "Alarm System". The system should have the following functionality:

[CO-4] [L-3] 10

- (a) Emit an event "alarmOn" when a new alarm is added to the system.
- (b) Emit an event "alarmOff" when a alarm is completed.

Display a message to the console for each of these events:

- (a) "Alarm On: <alarmName>" for the "alarmOn" event.
- (b) "Alarm Off: <alarmName>" for the "alarmOff" event.

OR

(b)

What are Event Emitters in Node JS? What is the difference between event emitter and event listener? Explain with 1 example. Explain the difference between the event.on() and event.once() in event listeners of Node JS. Explain with 1 example?

[CO-4] [L-3] 10

Q.4 (a)

Create a Node.js program that writes the following content to a file "login.txt" synchronously. **Below is the content of the file "login.txt"**
- *This is a login file.*
- *This contains the code for the login functionality*
- *We will also write the code to check login authentication*
Now write a Node.js program that reads the content of a text file "login.txt" Asynchronously and prints the content to the console.

[CO-2] [L-3] 10

OR

(b)

How to read the file Asynchronously explain with a code example?
What is the use of 'utf-8' encoding?
Explain how to write the data into the file Asynchronously with a code example?

[CO- 2][L-3]
10

Q.5 (a)

What is Buffer and why do we need buffer in the Node JS? Explain the key characteristics of the Buffer?

[CO-1][L-3] 10

Write a program to create a buffer containing the string "We are learning Node JS", then slice it to extract the word "learning" and log it to the console.

OR

(b)

Write a program in Node js to create a buffer of size 20. Write the "Today is Monday" at the beginning, and then read and log the contents

[CO-4][L-3]10

of the buffer. Also create the separate two buffers with the strings “Happy” and “Coding”. You need to concatenate them into a single buffer and print the result on the console.