

(b) Explain the different types of Maven plugins. How do they assist in the build process? (7)

7. (a) What are some standard in-built packages in Node.js? Provide a brief explanation of any three. (7)

(b) Write the output for the following code (assume the Text.txt file contains: "This is a software development class"): (8)

```
const fs = require('fs');
console.log("Good Morning")

fs.readFile('./Test.txt', 'utf-8', function(err, data){
  console.log(data);

  setTimeout(()=> {
    console.log("Timer callback executed");
  }, 0)

  setImmediate(()=> {
    console.log("Set Immediate function Executed");
  })

  process.nextTick(()=> {
    console.log("Process.NextTick is executed")
  })
})
console.log("Good Morning all");
```

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 744

I

Unique Paper Code : 6202453502

Name of the Paper : Full Stack Web Development-2

Name of the Course : **B.Voc. (Software Development)**

Semester : V

Duration : 3 Hours

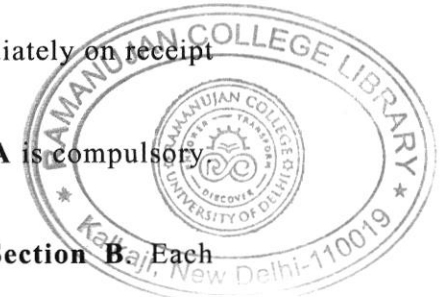
Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. The paper has **two** sections. **Section A** is compulsory. Each question is of **5** marks.
3. Attempt any **four** questions from **Section B**. Each question is of **15** marks.

Section A

1. (a) Describe Node.js and explain its role in web development. (5)
- (b) How does the fs module handle file reading? Explain the differences between fs.readFile() and fs.readFileSync(). (5)



- (c) Describe the process of request handling in a Node.js HTTP server with the help of a diagram. (5)
- (d) What is the difference between local and global packages in Node.js? (5)
- (e) What is the Project Object Model (POM) Maven? Describe its key elements and how is it used to manage Maven projects? (5)
- (f) Describe the main features of the Express framework. (5)

Section B

2. (a) How does Node.js handle incoming requests? Explain its working mechanism with the help of a diagram, including the concepts of the event queue, event loop, and thread pool. (8)
- (b) What is the fs module in Node.js? Write a code example demonstrating how to read and write files using the fs module. (7)
3. (a) Explain the steps involved in setting up a basic web server using Express.js. Include the corresponding code for handling GET requests to the root URL (/) and the /about URL. (8)

- (b) What are dynamic routes in Express.js? Provide a suitable code example to demonstrate them. (7)
- 4. (a) How do you integrate Node.js with MongoDB? Explain the process in detail, step by step. (7)
- (b) Explain how to perform CRUD operations in MongoDB using Node.js. Write code to perform the following tasks:
 - (i) Create a new document in a collection.
 - (ii) Read documents from the collection.
 - (iii) Update an existing document.
 - (iv) Delete a document from the collection
 (8)
- 5. (a) Explain the differences between Git, GitHub, and GitLab. Write their unique roles and provide examples of how each tool can be used in a software development workflow. (8)
- (b) Describe the core features of Jenkins and explain its advantages and disadvantages. (7)
- 6. (a) Compare Virtual Machines (VMs) and Docker containers. Explain their differences in architecture, resource management, and performance, and discuss scenarios where each might be preferred. (8)