

(Time: 2^{1/2} Hours)

[Total Marks: 75]

- N. B.: (1) All questions are compulsory.
 (2) Make suitable assumptions wherever necessary and state the assumptions made.
 (3) Answers to the same question must be written together.
 (4) Numbers to the right indicate marks.
 (5) Draw neat labeled diagrams wherever necessary.
 (6) Use of Non-programmable calculators is allowed.

1. **Attempt any three of the following:** 15
 - a. Enlist and explain the speed-aligned benefits of microservice architecture
 - b. What is microservice architecture? Explain the characteristics in detail
 - c. Enlist and explain the operating principles of UNIX
 - d. Write down the Principles of the microservices (as James Lewis)
 - e. With the suitable diagram, explain the microservice design model

2. **Attempt any three of the following:** 15
 - a. Explain the term Independent deployability in detail.
 - b. Explain the need for an API Gateway
 - c. Explain with example Monitoring and Alerting?
 - d. What are Docker and Microservices?
 - e. Explain the term CQRS in detail

3. **Attempt any three of the following:** 15
 - a. What is Microservices? What is Microservices Ecosystem?
 - b. Describe Integration Testing in Microservices
 - c. What is ASP.NET Core? Explain the steps for installing .NET Core.
 - d. Explain the steps for creating a CI pipeline for the team service
 - e. What is Docker? Explain the Docker terminology. Explain Docker installation process.

4. **Attempt any three of the following:** 15
 - a. What is DNS and Platform Supported Discovery
 - b. Explain the CQRS pattern in detail
 - c. Describe Cloud Native Web Applications
 - d. What are the prerequisites are used for running the samples
 - e. Write down the requirements for an event-sourced system

5. **Attempt any three of the following:** 15
 - a. Write a short note on Security in Cloud
 - b. How to dispose synchronous composite pattern
 - c. How to secure a service with cloud credentials
 - d. How to configure Microservices Ecosystem
 - e. How to utilize Cloud messaging provider