

Information Technology :Paper III - Microservices Architecture (R-2020)

(2Hours)

[Total Marks: 60]

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**.

**Q1. Attempt the two of the following.**

**12 Marks**

- Differentiate between Monolithic and MicroServices architecture.
- Explain how Microservices Communicate with each other
- Explain some popular frameworks and tools for building Microservices??
- Explain MicroServices with real time examples.
- Explain the role of containers in Microservices??

**Q2. Attempt the two of the following.**

**12 Marks**

- What are the factors considered during the dividing of monolithic application?
- Discuss security in a Microservices ecosystem?
- Discuss the key features of ASP.NET Core that make it suitable for MicroServices architecture?
- Explain Event Sourcing in a MicroServices ecosystem?
- Explain the concept of middleware in the ASP.NET Core pipeline?

**Q3. Attempt the two of the following.**

**12 Marks**

- Explain advantages of ASP.NET Core for web application development?
- Discuss the role of controllers and actions in an ASP.NET Core MVC application?
- Explain routing and URL mapping in an ASP.NET Core web application?
- Explain CQRS model in MicroServices System.
- Explain views and Layout in ASP.NET core Application.

**Q4. Attempt the two of the following.**

**12 Marks**

- Discuss how to create Controllers in ASP.NET core MVC application.
- Discuss how do you set up a CI/CD pipeline for Microservices?
- How do you implement caching in an ASP.NET Core web application?
- Explain how to build Real-Time Applications.
- Discuss the Need of an API Gateway.

**Q5. Attempt the two of the following.**

**12 Marks**

- Explain the role of Docker in application development.
- Explain the key principles and practices of continuous delivery in Microservices?
- Discuss database migrations and schema changes during continuous delivery?
- Explain how we perform Continuous integration with Wercker.
- Explain WebSockets in the Cloud.

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