

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

(2½ 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**.

**Q1. Attempt the three of the following.**

**15 Marks**

- Discuss the Characteristics of Microservices applications.
- Explain the guideline about when to use the Microservices and when to avoid it.
- Explain Maturity Model for MicroService Architecture: Goals & Benefits.
- Explain MicroServices system design process.
- How do you handle security in a MicroServices ecosystem?

**Q2. Attempt the three of the following.**

**15 Marks**

- Discuss Netflix's cloud architecture and operating principles.
- Discuss the usage of platform with respect to Shared platform.
- Explain g three aspect of culture for MicroService efforts.
- Write a short note on standardization and coordination?
- Write a short on the culture of the organization as the foundation element for the MicroService way.

**Q3. Attempt the three of the following.**

**15 Marks**

- Explain any one way to create an API for Microservices?
- Discuss the Asynchronous Message-Passing and Microservices?
- Discuss the API gateway with Transformation and Orchestration:
- Explain how to handle data synchronization between the read and write models in CQRS?
- Explain Implementation of CQRS in a MicroServices system?

**Q4. Attempt the three of the following.**

**15 Marks**

- a) Explain the role of Docker in application development.
- b) Explain the process of continuous integration using CircleCI.
- c) What is .NET Core? Explain its components?
- d) Explain the steps to build a console based web application using ASP.NET Core and Docker.
- e) Explain how to build the location service?

**Q5. Attempt the three of the following.**

**15 Marks**

- a) Explain the steps for creating a CI pipeline for the team service.
  - b) Explain in detail about Cloud Native Factors?
  - c) Write a note on Netflix Eureka?
  - d) Explain the term MVC (Model View Controller).
  - e) Write a note on REST API Usage.
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