(Time: 2½ hours)

[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** calculator is **allowed**.

1. **Attempt _any two_ of the following:**   12
a. Justify the statement: Speed and safety at Scale and in Harmony—The Microservices Way.
b. Describe how the organization's business values are benefited by the delivery speed.
c. With a neat labeled diagram, explain the microservice design process.
d. Explain the common set of principles to guide the software developer.

2. **Attempt _any two_ of the following:**   12
a. State and explain the practices in crafting API for microservices.
b. Delineate the role of API gateway in the overall architecture of the operations layer for microservices.
c. Mention the criteria for culture guidance and highlight their importance in adopting microservices thoroughly.
d. What is service discovery? Outline its importance in microservices architecture.

3. **Attempt _any two_ of the following:**   12
a. Write a short note on CoreCLR and CoreFX.
b. Explain the concept of Continuous integration.How to build service using Wercker?
c. With a suitable code snippet explain the term API First Development.
d. Explain the process for configuring Service URLs with environment variables.

4. **Attempt _any two_ of the following:**   12
a. Write a short note on CQRS.
b. Explain the steps for creating a web application using ASP.NET Core using a relevant example.
c. Considering backing service as a resource,describe the two approaches for binding it.
d. Write a code snippet illustrating the creation of a Database Context.

5. **Attempt _any two_ of the following:**   12
a. Write a short note on configuring microservices with etcd.
b. What is OpenID Connect? With a neat diagram, explain the Simple OpenID Connect flow.
c. What is a WebSocket Protocol? Explain.
d. Give the significance of Circuit breakers in Composite service calls.

5C12D92007851744282A488470461ED0