

**BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)**  
**B. Tech. Sem - V COMPUTER SCIENCE & BUSINESS SYSTEMS : SUMMER : 2024**  
**SUBJECT: CLOUD, MICRO SERVICES & APPLICATION**

Day : Friday  
Date : 17/05/2024

S-24173-2024

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of **CALCULATOR** is allowed.
- 4) Draw neat and labeled diagrams **WHEREVER** necessary.

Q.1 Explain the key component of typical cloud service and deployment model. (10)  
Provide examples for each component and elaborate on their functions in the cloud ecosystem.

OR

Discuss the role of containers in cloud computing. Describe container orchestration tools like Kubernetes and how they facilitate scalable and reliable application deployment in the cloud. (10)

Q.2 Examine the role of Compliance and regulatory requirements in cloud computing. How do these requirements impact cloud security and what strategies can organizations employ to stay compliant with relevant standards? (10)

OR

Explain the concept of multi-cloud architectures. What are the advantages and challenges of using multiple cloud providers or combining on-premises infrastructure with the cloud? (10)

Q.3 Provide an overview of Google Cloud Platform (GCP) and its Compute engine service. Compare Google Compute Engine with other virtual machine offering and explain how it enables organizations to run workload in the cloud. (10)

OR

Describe the foundational services of Amazon Web Services (AWS) and the use cases for AWS Virtual machines (EC2). Discuss how EC2 instance can be customized for different workloads and the scalability options available. (10)

Q.4 Explore the features of Spring Boot and how they simplify the development of microservices in JAVA applications. (10)

OR

Explain Spring Cloud and its role in building cloud-native applications. Discuss the various components and capabilities offered by Spring cloud for building distributed system and microservices. (10)

Q.5 Discuss the core concepts of Cloud Native DevOps with a focus on Kubernetes. How does Kubernetes support the deployment and scaling of containerized applications and what are the key principles of DevOps in cloud-native context? (10)

OR

Explain importance of automated testing in the API development process. (10)  
Describe how Postman can be utilized for API testing and provide examples of test scenarios and assertions.

Q.6 Discuss key Google Cloud infrastructure security measures and concepts. (10)  
Explain how Google Cloud helps organizations to protect their virtual machines, networks and data.

OR

Discuss the role of encryption in cloud security. Describe how organizations can encrypt data at rest in transit in Azure, AWS, and Google Cloud and the benefits of using encryption to protect sensitive information. (10)

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