



**End Term (Odd) Semester Examination December 2024**

Roll no. 2292104

Name of the Course and semester: BCA V

Name of the Paper: Fundamental of cloud computing

Paper Code: TBC 505

Time: 3 hour

Maximum Marks: 100

**Note:**

- (i) All the questions are compulsory.
- (ii) Answer any two sub questions from a, b and c in each main question.
- (iii) Total marks for each question is 20 (twenty).
- (iv) Each sub-question carries 10 marks.

**Q1.**

(2X10=20 Marks)

- a. Analyze a scenario where a company is considering migrating its IT infrastructure to the cloud. Discuss three advantages and three potential challenges of this decision. (CO1)
- b. Discuss five practical applications of cloud computing in different industries. Explain how the cloud is transforming these sectors (CO1)
- c. Explain the contributions of technologies like grid computing, utility computing, and virtualization to the emergence of cloud computing. (CO1)

**Q2.**

(2X10=20 Marks)

- a. Draw a detailed diagram of the NIST cloud reference architecture. Explain how its components help ensure interoperability and standardization in cloud computing. (CO2)
- b. Explain the four cloud deployment models. Also Explain their differences with respect to control, cost, and security. (CO2)
- c. Define IaaS, PaaS, and SaaS in cloud computing. Compare these service models in terms of:
  - Level of control offered to the user
  - Ease of deployment
  - Examples of real-world services. (CO2)

**Q3.**

(2X10=20 Marks)

- a. Explain the concept of distributed file systems. How do they enhance data accessibility and fault tolerance? (CO3)
- b. Explain the architecture and key features of the Google File System (GFS). (CO3).
- c. Define DAS, RAID, NAS, and SAN architectures. Compare their performance, scalability, and reliability. (CO3)

**Q4.**

(2X10=20 Marks)

- a. Describe the architecture of virtualization. Explain the interaction between hardware, hypervisors, and virtual machines with a labeled diagram. (CO4)
- b. What is a hypervisor? Compare and contrast Type 1 and Type 2 hypervisors. (CO4)
- c. Explain the different types of virtualizations. Provide examples of their applications. (CO4)

**Q5.**

(2X10=20 Marks)

- a. Explain the architecture and features of Google App Engine (GAE). (CO5)
- b. Compare and contrast AWS services like EC2 (compute), S3 (storage), and RDS (database). Discuss their use cases and benefits for enterprises. (CO5)
- c. Explain five key security recommendations for cloud computing environments. (CO5)