CBCS SCHEME

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BCS601

# Sixth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
## Cloud Computing

Time: 3 hrs. Max. Marks: 100

***Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.***
***2. M : Marks , L: Bloom's level , C: Course outcomes.***

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| | | Module – 1 | M | L | C |
|---|---|---|---|---|---|
| Q.1 | a. | Define Distributed Systems. Explain any three system models used in distributed and cloud computing with examples. | 10 | L2 | CO1 |
| | b. | What is Scalable Computing? Explain how cloud computing enables scalable computing over the Internet. | 10 | L2 | CO1 |
| | | **OR** | | | |
| Q.2 | a. | Compare and contrast cluster computing grid computing and cloud computing in terms of Architecture and Usage. | 10 | L3 | CO1 |
| | b. | Analyze the challenges in distributed systems related to performance, security and energy efficiency. | 10 | L3 | CO1 |
| | | **Module – 2** | | | |
| Q.3 | a. | Define Virtualization. Explain the different implementation levels of virtualization with examples. | 10 | L2 | CO2 |
| | b. | Define Virtual Clusters. Explain how virtual clusters are built and used in Distributed Systems. | 10 | L2 | CO2 |
| | | **OR** | | | |
| Q.4 | a. | Explain with examples how Resource Management is handled in Virtual Clusters. | 10 | L3 | CO2 |
| | b. | How does virtualization support data center automation and dynamic resource management? | 10 | L3 | CO2 |
| | | **Module – 3** | | | |
| Q.5 | a. | Define Cloud Computing. Explain the different service models (IaaS, PaaS, SaaS ) with examples. | 10 | L2 | CO3 |
| | b. | Explain the basic components and design considerations of a modern data center. | 10 | L2 | CO3 |
| | | **OR** | | | |
| Q.6 | a. | Describe the Architecture design of compute clouds with the help of a diagram. | 10 | L2 | CO3 |
| | b. | Compare the public cloud platforms: Google App Engine (GAE), Amazon Web Services (AWS) and Microsoft Azure. | 10 | L3 | CO3 |





| | | Module – 4 | | | |
|---|---|---|---|---|---|
| Q.7 | a. | Define Cloud Security. What are the top 5 security concerns faced by cloud users? | 10 | L1 | CO4 |
| | b. | What is a Privacy Impact Assessment (PIA)? List its key components and purpose in a cloud environment. | 10 | L1 | CO4 |
| | | **OR** | | | |
| Q.8 | a. | Analyze the security risks posed by shared virtual machine images and management operating systems in public cloud environments. | 10 | L4 | CO4 |
| | b. | Explain how XOAR architecture and trusted hypervisors enhance cloud security analyze their impact on virtualized data center environments. | 10 | L4 | CO4 |
| | | **Module – 5** | | | |
| Q.9 | a. | Apply the concept of MapReduce by writing a simple program to count the number of occurrences of each word in a text file. | 10 | L3 | CO5 |
| | b. | Develop a simple Python or Java application for Google App Engine to serve dynamic content using a basic web handler. | 10 | L3 | CO5 |
| | | **OR** | | | |
| Q.10 | a. | Analyze the differences between Parallel Computing Paradigms (MPI/openMP) and Cloud Programming Paradigms (MapReduce, GAE) in terms of scalability and fault tolerance. | 10 | L4 | CO5 |
| | b. | Examine how emerging cloud software environments like Microsoft Azure integrate PaaS, IaaS and SaaS. Analyze the flexibility offered to developers. | 10 | L4 | CO5 |

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