

# St. Claret College

Autonomous, Bengaluru

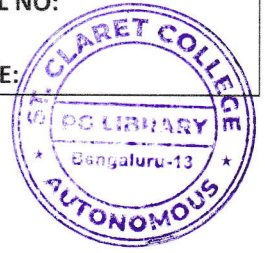
MCA END SEMESTER EXAMINATION - SEPTEMBER 2026

MCA: SECOND SEMESTER

MCA 2E125: CLOUD COMPUTING.

ROLL NO:

DATE:



TIME: 3 hours.

MAX. MARKS: 70

This paper contains TWO printed pages and FOUR parts

## Instructions:

1. Verify and ensure that the question paper is completely printed.
2. Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.
3. Students must check the course title and course code before answering the questions.

## PART-A

Answer any EIGHT questions out of TEN. Each answer carries TWO marks.

[2X8 = 16]

1. Define Cloud Computing and state any two characteristics.
2. Differentiate between Public Cloud and Private Cloud.
3. List any two advantages of the SaaS model.
4. Define Virtual Machine and mention one benefit of virtualization.
5. Distinguish between Infrastructure as a Service (IaaS) and Platform as a Service (PaaS).
6. Define MapReduce and identify its two major phases.
7. State any two advantages of Cloud Economics.
8. Define Multi-tenancy in cloud computing. Give one example.
9. Define Authentication in cloud computing with an example.
10. Mention any two legal issues associated with cloud computing.

## PART-B

Answer any FOUR questions out of SIX. Each answer carries FIVE marks.

[5X4=20]

11. Explain the cloud application development lifecycle and discuss the challenges in the SaaS model.
12. Explain the 7 R's strategy for cloud migration.
13. Compare distributed computing, grid computing, and cloud computing with suitable examples.
14. Explain Hadoop architecture and illustrate the working of the MapReduce programming model.
15. Analyze host-level and application-level security mechanisms used in cloud computing.
16. Discuss data privacy issues in public cloud architecture and recommend suitable protection mechanisms.

## PART-C

Answer any TWO questions out of FOUR. Each answer carries TEN marks.

[10X2=20]

17. Describe the interaction between the frontend and backend (provider side) in cloud computing architecture.
18. Explain how Google App Engine (GAE) and AWS provides managed execution through multi-language runtime environments.
19. Explain the architectural framework of the Eucalyptus and Open Nebula. Draw a neat, labeled architecture diagram and detail the core functions, interactions, and responsibilities of its key components.

20. a) Analyse the security mechanisms at the infrastructure, network, host, and application levels in cloud computing.  
b) Explain access control and authentication mechanisms adopted in cloud computing environments.

#### **PART-D**

**Answer the following question. Answer carries FORTTEEN marks.**

**[14X1=14]**

21. A healthcare organization plans to migrate its patient management system to a cloud environment. The organization requires secure storage of patient records, high availability, controlled access for medical staff, and scalability to accommodate increasing workloads.
- a) Recommend a suitable cloud deployment model with justification. **[3]**
  - b) Select appropriate cloud service models for the proposed solution and justify the selection. **[4]**
  - c) Analyze the major security challenges associated with the proposed cloud deployment. **[4]**
  - d) Recommend suitable security measures to ensure confidentiality, integrity, and availability of patient data. **[3]**

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