



UNIVERSITY EXAMINATIONS

FIRST SEMESTER 2025/2026 ACADEMIC YEAR

**FOURTH YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN COMPUTER SCIENCE**

COMP 416: CLOUD COMPUTING

STREAM: R

TIME: 2 HRS

DAY: THURSDAY [11.30 – 13.30 P.M]

DATE: 29/01/2026

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

INSTRUCTIONS: Section A is compulsory and has **30 marks**.

Attempt any **TWO** questions from Section B. Each question has **20 marks**.

Section A – 30 marks (Answer all questions)

QUESTION ONE (30 MARKS)

- 1) What is cloud computing? What are its characteristics? **(4 Marks)**
- 2) Discuss the various components of cloud computing? **(4 Marks)**
- 3) Compare cloud storage and traditional storage? **(4 Marks)**
- 4) Explain the data analysis techniques in Big data? **(3 Marks)**
- 5) Briefly discuss how distributed file system works? **(4 Marks)**
- 6) Explain the concept of virtualization? **(2 Marks)**
- 7) What are the pros and cons of virtualization? **(4 Marks)**
- 8) What are the benefits of using Microsoft Hyper-V? **(4 Marks)**

SECTION B – 40 MARKS (ANSWER ANY TWO QUESTIONS)

QUESTION TWO (20 MARKS)

- (a) Compare thin and thick clients? List at least **THREE** advantages of using thin clients?
(8 Marks)
- (b) Elaborate on the following cloud challenges: **(6 Marks)**
 - Compliance
 - Security and privacy
 - Migration
- (c) Explain different models for deployment in cloud computing? **(6 Marks)**

QUESTION THREE (20 MARKS)

- (a) Explain the structure and working of IoT? (2 Marks)
- (b) Compare classic and hybrid cloud service models? (6 Marks)
- (c) Distinguish Parallel, Distributed and Cluster processing? (6 Marks)
- (d) Distinguish between Structured, Unstructured and Semi-structured data? (6 Marks)

QUESTION FOUR (20 MARKS)

- (a) Differentiate Native and Hosted virtualization? (4 Marks)
- (b) Differentiate storage and data virtualization? (4 Marks)
- (c) Discuss about virtualized environments? (6 Marks)
- (d) Elaborate the architecture of HDFS and role of each component? (6 Marks)

QUESTION FIVE (20 MARKS)

- (a) What is fog computing and its benefits? (2 Marks)
- (b) Elaborate different challenges in cloud security? (4 Marks)
- (c) The standards for security define the processes, procedures, and practices necessary for Implementing a security program. Discuss the various standards for security? (6 Marks)
- (d) Discuss the characteristics and benefits of block chain technology? (4 Marks)
- (e) Discuss the role of Cloud of Things and its applications? (4 Marks)