Graphic Era
HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

End Term (Odd) Semester Examination December 2025

Roll no...........................

Name of the Course and semester: B.Tech (CSE) V Sem
Name of the Paper: Cloud-based Application Development and Management
Paper Code: TCS 552

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. Explain the key concepts and principles involved in the design and management of modern data centers. [CO2]
b. Explain the cloud-based application development motivating factors, benefits and challenges. [CO2]
c. Explain the role and architecture of Software Defined Networks (SDN) in cloud computing environment. [CO1]

Q2.   (2X10=20 Marks)
a. Describe the taxonomy of structured storage services in AWS. [CO2]
b. What is Azure VPN ? How communication is done between Azure resources ? [CO1]
c. Examine a real-world case study showcasing the adoption of Salesforce or Oracle Cloud and evaluate its benefits, challenges, and outcomes.[CO4]

Q3.   (2X10=20 Marks)
a. Illustrate the goals of Green cloud computing and briefly explain it's architecture with a suitable diagram. [CO3]
b. How does market-oriented cloud computing (MOCC) differ from cloud federation in terms of resource management, service provisioning, and collaboration? [CO1]
c. Discuss how MetaCDN and SpotCloud utilize cloud resources to improve performance, scalability, and cost efficiency for users. [CO4]

Q4.   (2X10=20 Marks)
a. Elaborate the various activities involved in cloud management. [CO2]
b. Explain the significance of cloud policy and governance with respect to risk management and regulatory compliance. [CO3]
c. Examine a real-world case study showcasing how organizations leverage DynamoDB or MongoDB to enhance application performance and flexibility. [CO6]

Q5.   (2X10=20 Marks)
a. How do MapReduce, Spark, and GraphLab differ in their approaches to distributed data processing and computation efficiency? [CO2]
b. Determine how infrastructure level and host level security is provided in cloud computing environments. [CO5]
c. Compare case studies of AWS IoT Core and AWS IoT FleetWise to highlight their roles in enhancing IoT connectivity and automotive data solutions. [CO6]