Roll No: | | | | | | | | | | | |

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

Presidency University Act, 2013 of the Karnataka Act No. 41 of 2013 | Established under Section 2(f) of UGC Act, 1956
Approved by AICTE, New Delhi | Approved By BCI
Bengaluru

Mid Term Examinations - October 2026

Date: 06/10/2026 **Time:** 09:30 AM - 11:00 AM

Course Code: ECE3078 **Course Name:** IoT and Cloud Computing

Semester: Seventh Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2	CO3
Marks	22	24	44

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	A research organization requires strong capabilities in large-scale data analytics and AI/ML. Which major cloud provider is particularly associated with these capabilities?	2	CO2	BT2
2	An organization uses its own private infrastructure for sensitive data but uses public-cloud resources when additional computing capacity is required. Identify the cloud deployment model.	2	CO3	BT2
3	Differentiate between IaaS and SaaS with one example of each.	2	CO3	BT2
4	List any two essential characteristics of cloud computing.	2	CO1	BT1
5	What is the CIA triad in cloud security?	2	CO2	BT2

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Analyze the major characteristics of a distributed system. Explain the roles of autonomous nodes, local memory, message passing, resource sharing, load sharing, and fault tolerance.	10	CO1	BT3
7	Explain the concept of utility computing and analyze how it addresses the problem of unused computing capacity. Compare utility computing with owning dedicated IT infrastructure.	10	CO1	BT3

PART C: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
8	Compare AWS, Microsoft Azure, and Google Cloud Platform (GCP) in terms of their major strengths, example services, and typical application scenarios.	10	CO2	BT3
9	A university is migrating its LMS to the cloud to support online classes, assignments, quizzes, and examinations. Thousands of students may access the system simultaneously during examinations. Formulate suitable SLA clauses by identifying measurable SLOs and KPIs for availability, response time, peak load, backup, recovery, and incident response.	10	CO2	BT3

PART D: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT

10	A cloud-based e-learning application performs the following operations: 1. A student accesses the web portal and submits login credentials. 2. The application server communicates with a backend service to exchange structured data. 3. A student downloads a lecture file from cloud storage. 4. The administrator securely transfers configuration files to a remote cloud server. Analyze the communication requirements and identify suitable network/application protocols for these operations. Explain why security considerations may require a secure version of a protocol rather than its basic form.	10	CO3	BT4
11	A cloud-based application is functioning correctly, but users report the following problems: 1. Login credentials are being transmitted without adequate protection. 2. A REST-based service is exchanging data successfully, but unauthorized users are able to intercept the communication. 3. An administrator is transferring configuration files to a cloud server using an insecure file-transfer mechanism. Analyze the protocol-level security issues in these situations. Identify appropriate secure communication protocols/mechanisms and explain how they address the identified problems.	10	CO3	BT4

PART E: Answer Any 1 Following Questions. 10 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
12	A cloud administrator observes the following incidents: 1. An attacker silently monitors network traffic. 2. A stolen authentication message is transmitted again later. 3. An attacker changes a transaction before it reaches the server. 4. An attacker floods a cloud service with excessive requests. Classify each incident as a passive or active attack and analyze the primary security objective affected in each case.	10	CO3	BT4
13	A university plans to migrate its student portal to the cloud. Students access the portal through web browsers, while the university's IT team manages virtual machines, storage, security, and cloud resources at the provider's side. During examinations, the number of users increases significantly, requiring additional resources to be allocated dynamically. Analyze this scenario using the NIST cloud architecture. Identify the roles of the cloud consumer, cloud provider, and cloud broker, and explain which cloud characteristics enable the system to handle the sudden increase in users.	10	CO3	BT4