R22 Regulation — *Subject code:4E7HA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VII Semester Regular/Supplementary Examinations, October 2026

CLOUD COMPUTING

(CSE (DS))

Maximum Marks: 60 Date:26.10.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BTL
1.a)	Define cloud computing as per NIST.	1M	1	L1
b)	What is elasticity in cloud computing?	1M	1	L1
c)	What is Representational State Transfer (REST)?	1M	2	L1
d)	Define hypervisor.	1M	2	L1
e)	List the three service models of cloud computing.	1M	3	L1
f)	What is a bucket in Amazon S3?	1M	3	L1
g)	What is inter-cloud resource management?	1M	4	L1
h)	Define Identity and Access Management (IAM).	1M	4	L1
i)	What is the role of the Map function in MapReduce?	1M	5	L1
j)	What is OpenStack?	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Explain the evolution of cloud computing from mainframe computing to utility and cloud computing. b) Describe the essential characteristics of cloud computing.	5M 5M	1	L2
	OR			
3	a) Explain the underlying principles of parallel and distributed computing. b) Discuss elasticity and on-demand provisioning in cloud with suitable examples.	5M 5M	1	L2
4	a) Explain Service Oriented Architecture (SOA) with reference to REST and Systems of Systems. b) Describe the Publish-Subscribe model used in web services.	5M 5M	2	L2
	OR			
5	a) Explain the implementation levels of virtualization with a neat diagram. b) Discuss the virtualization of CPU, memory and I/O devices.	5M 5M	2	L2

6	a) Explain the layered cloud architecture design with a neat diagram. b) Compare public, private and hybrid clouds.	5M 5M	3	L2
	OR			
7	a) Explain the NIST cloud computing reference architecture and its actors. b) Describe Amazon S3 as a Storage-as-a-Service offering and list its advantages.	5M 5M	3	L2
8	a) Explain the resource provisioning methods: demand-driven, event-driven and popularity-driven. b) Discuss the global exchange of cloud resources.	5M 5M	4	L2
	OR			
9	a) Explain the major security challenges in cloud computing. b) Describe virtual machine security and Identity and Access Management (IAM) in cloud.	5M 5M	4	L2
10	a) Explain the MapReduce programming model with the word-count example. b) Explain the architecture of Google App Engine.	5M 5M	5	L2
	OR			
11	a) Explain the architecture and core components of OpenStack. b) Analyze the four levels of federation in the cloud.	5M 5M	5	L2