AI364TA

USN | 1 | RV | 22 | AI | 006 | 7 |

RV COLLEGE OF ENGINEERING®

(An Autonomous Institution Affiliated to VTU)

VI Semester B. E. Regular Examinations August-2025

Artificial Intelligence and Machine Learning

CLOUD COMPUTING TECHNOLOGY AND ARCHITECTURES.

Time: 03 Hours ***Maximum Marks: 100***

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer FIVE full questions from Part B. In Part B question number 2 is compulsory. Answer any one full question from 3 and 4, 5 and 6, 7 and 8, 9 and 10.

PART-A

			M	BT	CO
1	1.1	Define parallel computing.	02	2	1
	1.2	Give any example of Service Oriented Architecture.	02	1	1
	1.3	Parallel systems are called tightly coupled systems. Justify your answer not more than two sentences.	02	4	1
	1.4	Write examples instruction of MISD and MIMD systems.	02	2	2
	1.5	Define Data Intensive Computing.	02	2	2
	1.6	Define Data grids in Data Intensive Computing.	02	1	2
	1.7	Why Amazon S3 Stored objects cannot be manipulated like standard files?	02	1	1
	1.8	List any two roles of Azure.	02	2	1
	1.9	Write any two business strategy objectives used in cloud principles.	02	1	3
	1.10	Define GreenOps? Write its advantage.	02	2	3

PART-B

2	a	Develop a comprehensive strategy for cloud utilization in the higher education institution, addressing key areas such as optimization, collaboration tools, research support, and administrative tasks.	08	4	1
	b	Illustrate with neat diagram the cloud Computing reference model.	08	2	1
3	a	Discuss how virtualization assures increase in security and execution management.	08	2	2
	b	Discuss the working of various components in Xen architecture.	08	2	2
		OR			
4	a	With neat diagram differentiate para virtualization and full virtualization.	08	3	2
	b	Along with Virtualization references model briefly discuss the role of virtualization layer.	08	2	2
5	a	Compare and contrast the storage systems used in data-intensive computing, focusing on distributed file systems.	08	4	1
	b	Discuss any four different services offered by Google App Engine.	08	2	1
		OR			

6	a	Compare Amazon Web service (AWS) and Google App Engine(GAE).	08	4	1
	b	With suitable example illustrate the working MapReduce programming paradigm in detail.	08	2	4
7	a	Evaluate the advantages and potential challenges enterprises face when implementing a multi-cloud strategy, with a focus on risk mitigation, performance optimization, and meeting regulatory compliance needs.	08	3	3
	b	Illustrate the application of the below principles in real-world multi-cloud environments. i) Application Principles ii) Data principles iii) Business Principles iv) Technology Principles.	08	3	3
		OR			
8	a	Discuss the role and application of architectural principles in managing multi-cloud architectures.	08	2	3
	b	Outline a strategic framework for deploying a multi-cloud environment, with focus on provider diversity, workload distribution, data portability, and budget optimization.	08	4	3
9	a	Develop a continuous integration and deployment pipeline plan, covering source control, automated builds, testing frameworks, and deployment mechanisms relevant to the use case.	08	4	3
	b	Imagine you're a DevOps engineer at a major e-commerce firm utilizing AIOps to manage critical IT components. Illustrate how AIOps, in conjunction with data analytics, can generate predictive insights and suggest proactive actions for infrastructure upgrades and capacity management.	08	4	4
		OR			
10	a	Design a comprehensive build and release pipeline for the Swiggy mobile application, considering the integration of a new gateway to support existing UPI transactions.	08	4	4
	b	As a Senior AI engineer, describe a real-world scenario where Green AIOps is applied to enhance the efficiency of data centers and cloud infrastructure, focusing on reducing energy consumption and minimizing environmental impact.	08	4	4