COURSE CODE: 21AI54

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RV COLLEGE OF ENGINEERING
Autonomous Institution affiliated to VTU
V Semester B.E. April-2024 Examinations
DEPARTMENT ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Cloud Computing and Architectures

(2021 SCHEME)

Time: 03 Hours *Maximum Marks: 100*

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in the 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, and 9 and 10.

Q. No	PART-A	M
1.1	List any two technologies on which Cloud Computing relies	2
1.2	Give 2 examples of Web 2.0 applications?	2
1.3	What do you mean by load balancing in Cloud Computing?	2
1.4	What is the role of ABI interface in implementing Virtual Machine?	2
1.5	What are security services in the cloud ?	2
1.6	Explain IaaS and PaaS ?	2
1.7	What do you mean by instance in AWS, list any 2 types on instances on which AWS operates	2
1.8	Define web role and virtual machine role in Azure	2
1.9	Define Business Principles and Data Principles used in Multi cloud	2
1.10	Write the difference between Continuous Delivery and Continuous Deployment in CI\CD pipeline	2

PART-B (Maximum subdivisions is limited to 4 in each question)

UNIT-I			
2	a	With Architecture discuss the Cloud Computing reference model in detail	8
	b	Illustrate difference between Parallel and Distributed Computing	4+4

		UNIT-II	
3	a	Compare Full and Para Virtualization	8
	b	How cloud computing handles the following i. Security ii. Reliability iii. Resource Control iv. Availability	8
		OR	
4	a	Why data redundancy is most important? Explain stripping and Mirroring in RAID	2+3 +3
	b	Write roles and responsibilities of the following components in implementing virtualization i. ABI ii. VID iii. ISA iv. Hypercalls	8

		UNIT-III	
5	a	What is instance in AWS, Discuss Amazon Elastic Compute (EC2) instances?	8
	b	Take a suitable example and explain the concept of Map Reduces?	4+4
		OR	
6	a	With Architecture explain the Google App Engine	8
	b	Assume the friends are stored as Person->[List of Friends], our friends list is then: A -> B C D B -> A C D C -> A B D D -> A B C Each line will be an argument to a mapper. For every friend in the list of friends, the mapper will output a key-value pair. The key will be a friend along with the person. The value will be the list of friends. The key will be sorted so that the friends are in order, causing all pairs of friends to go to the same reducer. Apply map reduce to find the common friend of D and A (Write the map reduce function, Write both the map set and reducer set, and conclude)	8

		UNIT-IV	
7	a	Illustrate the ADM cycle in the TOGAF	8
	b	Discuss the five most important Principles in Multicloud.	8
		OR	
8	a	Illustrate how the Intelligent layer used to manage the big data	8
	b	Explain the below quality attributes used in Architecture Principle 1. Configurability 2. Scalability	4+4

		UNIT-V	
9	a	What do you mean by CI/CD, Explain DevOps framework principles defined by DevOps Agile Skills Association (DASA)	8
	b	With diagram explain DevOps cycle with CI/CD	8
		OR	
10	a	With Conceptual diagram discuss build and release pipeline	4+4
	b	Using the DevSecOps Maturity Model explain the different level of maturity in terms of security integration	2+6

Course Outcomes: After completing the course, the students will be able to:-	
CO1	Explain the concepts of cloud computing, cloud models, cloud infrastructure, cloud services, distributed computing, and other related concepts.
CO2	Apply the fundamental concepts in virtualization, virtualization cluster datacentres to understand the efficiency in PAAS, SAAS, IAAS
CO3	Illustrate the fundamental concepts of Multi cloud storage and demonstrate their use in different use cases
CO4	Analyse various cloud programming models and apply them to solve problems on the cloud.
CO5	Demonstrate critical, innovative thinking, and display competence in oral, written, and visual communication.

M-Marks, BT-Blooms Taxonomy Levels, CO-Course Outcomes

Marks Distribution	**Particulars**	**CO1**	**CO2**	**CO3**	**CO4**	**C05**	**L1**	**L2**	**L3**	**L4**	**L5**	**L6**
	Max Marks 100	26	30	36	8	-	12	56	32	-	-	-