

PRN No.	
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PAPER CODE	0314-213 (ESE)
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**(AY:2024-25) December 2024 (ENDSEM) EXAM
TY (SEMESTER - I)**

COURSE NAME:	CLOUD COMPUTING & ANALYTICS	COURSE CODE:	ADUA3120
BRANCH:	ARTIFICIAL INTELLIGENCE & DATA SCIENCE		

(T.Y PATTERN 2020R1)

Time: [1Hr 30 Min]

[Max. Marks: 40]

(* Instructions to candidates:

- 1) **Figures to the right indicate full marks. Use of scientific calculator is allowed**
- 2) **Use suitable data wherever required**
- 3) **All questions are compulsory. Solve any two sub question each from Questions 1 and 2**
- 4) **Solve any one sub question (2 marks) from Questions 3, 4, 5 and 6 and sub question of 4 marks is compulsory from questions 3,4,5,and 6**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Describe how the TCP/IP protocol suite manages data transmission across its layers. In your explanation, include the role of the headers and tails added by each layer, and how they contribute to the overall communication process	[4]	CO1	Understanding
	b) Describe the key features of a cloud platform, such as scalability, elasticity, pay-as-you-go pricing, and multi-tenancy.	[4]	CO1	Understanding
	c) Write a shell script in Linux that automates a specific task (e.g., checking if a file exists, iterating through a list of files, or monitoring system resources). Incorporate control structures such as if-else, for loops, or while loops to enhance the script's functionality.	[4]	CO1	Apply
Q2	a) Describe the steps involved in creating an AWS account and explain the importance of setting up a secure password and multi-factor authentication (MFA).	[4]	CO2	Understanding
	b) Illustrate the steps for Launch an EC2 instance using the AWS Management Console. Explain how to configure security groups, key pairs, and storage options during the setup process to ensure proper access control.	[4]	CO2	Apply
	c) Given a scenario where a company manages sensitive customer data, which cloud deployment model would you choose and why? Justify your	[4]	CO2	Apply

	recommendation based on the specific needs of handling sensitive information			
Q3	a) Define Infrastructure as Code (IaC), and how does it differ from traditional infrastructure management? OR	[2]	CO3	Understanding
	b) Discuss the purpose of provisioners in Terraform, and in what scenarios would you utilize them?	[2]	CO3	Understanding
	c) Write a Terraform configuration to deploy an EC2 instance in AWS. Explain how the declarative nature of Terraform simplifies infrastructure management.	[4]	CO3	Apply
Q4	a) Describe the general process flow of an Ansible execution. What steps are involved from start to finish? OR	[2]	CO4	Understanding
	b) Explain the role of the apt module in Ansible. In what scenarios would you use it?	[2]	CO4	Understanding
	c) Create an Ansible task that ensures the Nginx service is running and enabled to start on boot. Discuss how you would handle cases where the service is not running.	[4]	CO4	Apply
Q.5	a) Discuss the basic operations you can perform on Docker containers? List at least three applications. OR	[2]	CO5	Understanding
	b) Describe the basic architecture of Kubernetes. What are the key components, and what roles do they play in managing containerized applications?	[2]	CO5	Understanding
	c) Create a Docker image for a simple web application. Describe the steps taken to write the Docker file, build the image, and push it to a Docker registry.	[4]	CO5	Apply
Q.6	a) Define Maven Server, and how does it assist in project management and build automation in Java applications? OR	[2]	CO6	Understanding
	b) Explain the role of Jenkins in Continuous Integration and Continuous Delivery. What are its key features.	[2]	CO6	Understanding
	c) Write a series of Git commands to initialize a repository, add files, commit changes, and push to a remote repository. Explain the purpose of each command.	[4]	CO6	Apply