

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 3610

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Unique Paper Code : 6202453601

Name of the Paper : Cloud Computing

Name of the Course : **B.Voc Software Development**

Semester : VI

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of question paper.
2. The paper has two sections. Section A is compulsory. Each question is of 5 marks.
3. Attempt any four questions from Section B. Each question is of 15 marks.

Section A

- 1 (a) Explain characteristics of cloud computing with examples. (5)
- (b) Explain cloud deployment models with suitable examples. (5)
- (c) What are SLA levels? Explain customer-based SLA. (5)
- (d) Explain hypervisor architecture in virtualization. (5)
- (e) Explain disaster recovery and failover mechanism. (5)

P.T.O.

(f) Write short notes on: (5)

(i) Google Cloud Services

(ii) Windows Azure

Section B

2. (a) Explain evolution of cloud computing and major computing trends. (7)

(b) Write steps to create an S3 bucket and host a static website in AWS. (8)

3. (a) Explain service models (IaaS, PaaS, SaaS) with architecture. (7)

(b) Explain virtualization security and its challenges (8)

4. (a) Explain cloud security threats and mitigation techniques. (7)

(b) Explain symmetric and asymmetric encryption in cloud computing. (8)

5. (a) Explain privacy concerns and legal issues in cloud computing. (7)

(b) Explain disaster recovery planning and business continuity. (8)

6. (a) Explain Hadoop ecosystem and working of HDFS. (7)

(b) Consider the following input data processed using MapReduce:

"hadoop spark hadoop mapreduce spark hadoop cloud spark cloud" Based on the above input, answer the following: (8)

- i. Generate the Map phase output.
 - ii. Illustrate the grouping after Shuffle phase.
 - iii. Compute the Reduce phase output.
 - iv. Identify the word with maximum frequency.
7. (a) A cloud system guarantees an availability of 99.95% uptime under SLA. Considering a 30-day month, answer the following:
- i. Calculate the maximum allowable downtime.
 - ii. If the actual downtime recorded is 1 hour, determine whether the SLA is met. (7)
- (b). A company operates cloud infrastructure consisting of 2 EC2 instances, each costing 9 per hour and running for 12 hours per day, cloud storage of 750 GB charged at 2.5 per GB per month, and data transfer of 500 GB charged at 0.8 per GB. Based on the above scenario, answer the following: (8)
- i. Calculate the total monthly EC2 cost.
 - ii. Determine the monthly storage cost.
 - iii. Compute the total data transfer cost.
 - iv. Calculate the overall monthly cloud expenditure.