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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech (Integrated)

SEM: V - THEORY EXAMINATION (2024 - 2025)

Subject: Introduction to Cloud Computing

Time: 3 Hours

Max. Marks: 100

General Instructions:*IMP: Verify that you have received the question paper with the correct course, code, branch etc.**1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.**2. Maximum marks for each question are indicated on right -hand side of each question.**3. Illustrate your answers with neat sketches wherever necessary.**4. Assume suitable data if necessary.**5. Preferably, write the answers in sequential order.**6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.***SECTION-A**

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1. Attempt all parts:-

- 1-a. Select one of the following cloud computing characteristics that enable consumers to use cloud services from a wide range of client platforms: (CO1,K1) 1
- (a) Broad network access
 - (b) Measured service
 - (c) Rapid elasticity
 - (d) On-demand self service
- 1-b. Point out the incorrect statement:(CO1,K1) 1
- (a) Internet consumes roughly 1 percent of the world's total power
 - (b) The cost advantages of cloud computing have enabled new software vendors to create productivity applications
 - (c) A client can provision computer resources without the need for interaction with cloud service provider personnel
 - (d) None of the mentioned
- 1-c. Choose one of the following virtualization types, which may be found in hypervisors like Microsoft Hyper-V:(CO2,K1) 1
- (a) para virtualization
 - (b) full virtualization
 - (c) emulation
 - (d) none of the mentioned

- 1-d. Choose one of the following to serve as the Windows Server host operating system:(CO2,K1) 1
- (a) VirtualLogix VLX
 - (b) Microsoft Hyper-V
 - (c) Xen
 - (d) All of the mentioned
- 1-e. E-mail, CRM, ERP and office suites are examples of applications delivered through:(CO3,K1) 1
- (a) IaaS
 - (b) PaaS
 - (c) SaaS
 - (d) All of these
- 1-f. NIST specifies the following cloud models:(CO3,K1) 1
- (a) IaaS
 - (b) PaaS
 - (c) SaaS
 - (d) All of these
- 1-g. An operational support system includes:(CO4,K1) 1
- (a) Provisioning
 - (b) configuration management
 - (c) service request management
 - (d) All of the mentioned
- 1-h. Virtualized infrastructure includes:(CO4,K1) 1
- (a) serverless
 - (b) storage
 - (c) Network as a service
 - (d) All of the mentioned
- 1-i. IPsec on the Azure platform refers to:(CO5,K1) 1
- (a) Internet Protocol Security protocol suite
 - (b) Internet Standard
 - (c) Commodity servers
 - (d) All of the mentioned
- 1-j. OpenStack is.....(CO5,K1) 1
- (a) Infrastructure
 - (b) Platform
 - (c) Software
 - (d) None of the mentioned

2. Attempt all parts:-

2.a.	Discuss mainframe computing with a suitable example.(CO1,K1)	2
2.b.	Explain CPU virtualization with suitable example.(CO2,K2)	2
2.c.	Name and discuss the service that works as Man- in middle.(CO3,K2)	2
2.d.	Recall Elastic Block Storage with suitable example.(CO4,K1)	2
2.e.	Define Elastic Load Balancer and Simple Queue Service.(CO5,K1)	2

SECTION-B

30

3. Answer any five of the following:-

3-a.	Discuss the working of Cloud Computing with suitable example.(CO1,K2)	6
3-b.	Explain the different phases of cloud evolution with suitable diagram.(CO1,K2)	6
3-c.	Differentiate grid and cluster computing with suitable example.(CO2,K4)	6
3-d.	Recognize the term disaster recovery in cloud computing with its real time example.(CO2,K2)	6
3.e.	Differentiate hybrid cloud from community cloud with suitable example.(CO3,K4)	6
3.f.	Explain why load balancing is essential for ensuring high availability and reliability in cloud environments.(CO4,K2)	6
3.g.	Express the following terms: (a) Dynamic-based resource provisioning method (b) Adaptive-based resource provisioning method.(CO5,K2)	6

SECTION-C

50

4. Answer any one of the following:-

4-a.	Explain the role of application programming interfaces (APIs) in cloud computing.(CO1,K2)	10
4-b.	Discuss cloud economies with a suitable example also explain a few parameters of cloud economies.(CO1,K2)	10

5. Answer any one of the following:-

5-a.	Express the layers of virtualization in detail with suitable example.(CO2,K2)	10
5-b.	Recognize the types of hypervisors and their relevance in detail.(CO2,K2)	10

6. Answer any one of the following:-

6-a.	Describe the chargeback model and discuss how consumers need to pay for the consumed services with a suitable example.(CO3,K4)	10
6-b.	Express and differentiate among Fibre Channel SAN, Internet Protocol SAN, and Fibre Channel over Ethernet SAN.(CO3,K2)	10

7. Answer any one of the following:-

7-a.	Demonstrate the various stages of service deployment and orchestration in cloud computing and also provide some examples.(CO4,K4)	10
7-b.	Explain how you can increase the size of an EBS volume that is currently attached to an EC2 instance, and also describe the considerations or limitations when doing so.(CO4,K2)	10

8. Answer any one of the following:-

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|------|--|----|
| 8-a. | Restate the concept of IAM (Identity and Access Management) in detail with suitable example. (CO5,K3) | 10 |
| 8-b. | “Cloud security helps to understand an organisation’s risks and their business impact.” Clarify the statement in detail.(CO5,K2) | 10 |

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