Printed Page:-04

Subject Code:- BMCA0301

-2024

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA

SEM: III - THEORY EXAMINATION (2024 - 2025)

Subject: Cloud Computing

Time: 3 Hours

General Instructions:

Max. Marks: 100

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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

1. Attempt all parts:-

- 1-a. What is cloud computing?[CO1] [K2]
 - (a) A method of storing data on physical servers
 - (b) A technology that allows access to computing resources over the internet
 - (c) A type of software for managing virtual machines
 - (d) A method of data encryption for secure storage
- 1-b. Which of the following deployment models involves sharing physical hardware 1 with other organizations?[CO1] [K2]
 - (a) Private cloud
 - (b) Hybrid cloud
 - (c) Public Cloud
 - (d) Community Cloud

1-c. is the primary benefit of virtualization?[CO2] [K2]

- (a) Improved security
- (b) Reduced hardware costs
- (c) Increased network speed
- (d) Enhanced data encryption
- 1-d.is a hypervisor in virtualization?[CO2] [K2]
 - (a) A hardware device used to secure virtual machines
 - (b) An operating system designed for virtualization

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(c) A software layer that enables multiple virtual machines to run on a single physical machine

- (d) A networking component used to connect virtual machines
- 1-e. Service orchestration in SOA?[CO3] [K4]
 - (a) The process of composing multiple services to accomplish a specific business task

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- (b) The management of physical servers in a data center
- (c) The coordination of service requests and responses
- (d) The enforcement of security policies for services
- 1-f. In SOA, what is a service?[CO3] [K1]
 - (a) A physical device
 - (b) A software component that provides functionality to other components
 - (c) A user interface element
 - (d) A database management system
- 1-g. What is an unmanaged resource in cloud computing?[CO4] [K2]
 - (a) User-controlled
 - (b) Provider-controlled
 - (c) Shared
 - (d) Physical
- 1-h.Which of the following is NOT a key component of managing virtual machine1instances in the cloud?[CO4][K4]
 - (a) Instance type
 - (b) Security group
 - (c) Subnet
 - (d) RAID configuration
- 1-i. In which one of the following phases, IT Architecture Development came? [CO5] 1 [K4]

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- (a) Strategy Phase
- (b) Deployment Phase
- (c) Planning Phase
- (d) Development Phase
- 1-j. In the cloud data lifecycle, which stage involves transforming raw data into a 1 structured format suitable for analysis?[CO5] [K3]
 - (a) Acquisition
 - (b) Transformation
 - (c) Presentation
 - (d) Distribution
- 2. Attempt all parts:-
- 2.a. Mention platforms which are used for large scale cloud computing? [CO1] [K1] 2

2.b.	Define application virtualization?[CO2] [K1]	2
2.c.	Explain the concept of a Hybrid Cloud.[CO3] [K2]	2
2.d.	What role does DNS play in cloud networking?[CO4] [K2]	2
2.e.	What are some common types of attacks that target cloud environments?[CO5] [K4]	2
SECTI	<u>ON-B</u>	30
3. Answ	ver any <u>five</u> of the following:-	
3-a.	What are the security aspects provided with cloud? [CO1] [K1]	6
3-b.	What is the main difference between parallel and distributed computing? [CO1] [K4]	6
3-с.	Describe the advantages of using virtual appliances in IT infrastructure.[CO2] [K1]	6
3-d.	Explain the difference between static and dynamic resource provisioning.[CO2] [K1]	6
3.e.	Describe the benefits of using SOA in enterprise application development.[CO3] [K1]	6
3.f.	In what scenarios would you choose a managed service over an unmanaged service?[CO4] [K2]	6
3.g.	Describe authentication and authorization managed in cloud environments?[CO5] [K1]	6
SECTION-C		50
4. Answ	ver any <u>one</u> of the following:-	
4-a.	Explain architecture of cloud computing with suitable diagram. [CO1] [K1]	10
4-b.	Explain the concept of burstable instances in cloud computing. How do they support scalability?[CO1] [K1]	10
5. Answ	ver any <u>one</u> of the following:-	
5-a.	Compare and contrast Type 1 and Type 2 hypervisors in terms of performance and deployment scenarios.[CO2] [K4]	10
5-b.	What is virtualization, and how does it differ from traditional physical server deployments?[CO2] [K2]	10
6. Answ	ver any <u>one</u> of the following:-	
6-a.	What are the typical layers in a cloud architecture, and what functions do they serve? [CO3] [K2]	10
6-b.	What is the NIST Cloud Computing Reference Architecture, and how does it influence layered cloud architecture design? [CO3] [K2]	10
7. Answ	ver any <u>one</u> of the following:-	
7-a.	Describe the role of VPC endpoints in enabling private connectivity between a VPC and AWS services such as S3 and DynamoDB.[CO4] [K1]	10
7-b.	How does DynamoDB differ from traditional relational databases, and what are	10

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the advantages of using DynamoDB for NoSQL database applications?[CO4] [K2]

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- 8. Answer any one of the following:-
- 8-a. Develop a comprehensive security plan for migrating an on-premises database to a 10 cloud environment, considering authentication mechanisms, access controls, and disaster recovery measures.[CO5] [K6]
- 8-b. Define the data creation and ingestion to storage, processing, analysis, and archival or deletion stages.[CO5] [K1]

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