Printed Page:-04 Subject Code:- ACS0401 Roll. No: NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA (An Autonomous Institute Affiliated to AKTU, Lucknow) **B.Tech** SEM: IV - THEORY EXAMINATION - (2024-2025) **Subject: Cloud Computing Architecture 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. 20**SECTION-A**

1. Attempt all parts:-

- 1-a. One of the following provide system resource access to virtual machines: (CO1) 1
 - (a) VMM
 - (b) VMC
 - (c) VNM
 - (d) All of the mentioned

1-b. The technology used to distribute service requests to resources is referred to as (CO1)

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- (a) load performing
- (b) load balancing
- (c) load scheduling
- (d) all of the mentioned

1-c.describes a message-passing taxonomy for a component-based architecture that provides services to clients upon demand. (CO2)

- (a) SOA
- (b) S3
- (c) EC2
- (d) None of the above
- 1-d. are developed, maintained and owned by multiple stakeholders 1 in SOA. (CO2)

- (a) Web page
- (b) Web application
- (c) Messages
- (d) Services

1-e. IBM CCRA is driven by: (CO3)

- (a) Functional requirement
- (b) Non- functional requrement
- (c) Both functional and non- functional requrement
- (d) None of the mentioned
- 1-f. Challenges in designing cloud architecture includes: (CO3)
 - (a) Open Architecture
 - (b) Interoperability
 - (c) Security
 - (d) All of the mentioned
- 1-g. Function of a router: (CO4)
 - (a) converting the data from one format to another
 - (b) Forward the packet to the up links
 - (c) error detection in data
 - (d) None of the given
- 1-h. This storage service can be used without attaching/mounting any instance: (CO4) 1

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- (a) S3
- (b) EFS
- (c) EBS
- (d) None of the given
- 1-i.

Select one of the following which define Network Operating Center. (CO5)

(a) The area of a data center where operators can monitor the performance network devices and administer equipment in need of maintenance.

- (b) The area of a data center where the computer network is operated from.
- (c) The area of a data center where operators monitor the network, also known as the computer room.
- (d) None of the above
- 1-j. lets you run multiple operating systems on one physical server. 1 (CO5)
 - (a) Processor
 - (b) Hypervisor
 - (c) Virtual Machine
 - (d) Guest Operating System
- 2. Attempt all parts:-

| 2.a. | Discuss VMM with and its types. (CO1) | 2 |
|---------------|--|----|
| 2.b. | State about platform independency. (CO2) | 2 |
| 2.c. | Draw the usage scenario of cloud auditor.(CO3) | 2 |
| 2.d. | Explain the working of DNS. (CO4) | 2 |
| 2.e. | Define Data Center Networking. (CO5) | 2 |
| SECTIC | <u>DN-B</u> | 30 |
| 3. Answe | er any <u>five</u> of the following:- | |
| 3-а. | Differentiate between "scalability" and "elasticity" in cloud computing. (CO1) | 6 |
| 3-b. | Discuss the way virtualization is helpful in disaster recovery and backup creation for cloud environment. (CO1) | 6 |
| 3-с. | Enlist and brief the challenges faced while implementing SOA in cloud service environment. (CO2) | 6 |
| 3-d. | Write short notes on: (I) Front end (ii) Back end (iii) Business logic (CO2) | 6 |
| 3.e. | Justify this statement "Global Exchange of Cloud Resources solves the problem of resource availability". (CO3) | 6 |
| 3.f. | Discuss the importance of being Security Groups stateful. (CO4) | 6 |
| 3.g. | Differentiate Blade server with Cluster server. (CO5) | 6 |
| SECTIC | SECTION-C | |
| 4. Answe | er any <u>one</u> of the following:- | |
| 4-a. | Write short notes on: (i) Parallel Computing (ii) Cluster Computing (CO1) | 10 |
| 4-b. | Discuss about SLA and enlist its need for consumer and provider in cloud service delivery. (CO1) | 10 |
| 5. Answe | er any <u>one</u> of the following:- | |
| 5-a. | Discuss the advantages of REST services over traditional Web Services. (CO2) | 10 |
| 5-b. | Based on what factors, you can decide which type of web services you need to use - SOAP or REST? (CO2) | 10 |
| 6. Answe | er any <u>one</u> of the following:- | |
| 6-a. | In terms of cost effectiveness, discuss about each service that cloud computing offers. (CO3) | 10 |
| 6-b. | Write Short Notes on: (i) Architecture design as a cross domain workspace and (ii) Role and responsibilities of cloud Auditor. (CO3) | 10 |
| 7. Answe | er any <u>one</u> of the following:- | |
| 7-a. | Differentiate EBS and EFS on various parameters with example. (CO4) | 10 |
| 7-b. | In a block of addresses, the IP address of one host is 182.44.82.16/26. Find the first address, the last address, total possible hosts and network mask. (CO4) | 10 |
| 8. Answe | er any <u>one</u> of the following:- | |
| 8-a. | Differentiate the 'Scale up' architecture with 'Scale out' architecture of data centers. (CO5) | 10 |

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8-b. Discuss about points that must be taken care of while delivering Stand-alone servers and Blade servers as a service in cloud. (CO5)

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