



**BRAINWARE UNIVERSITY**  
**Ph.D. Course Work Examinations**  
**Programme – Ph.D. in Computer Science**  
**Course Name – Advanced Cloud Computing**  
**Course Code – PHD – CSS01B**  
**(Semester – 1)**

**Time allotted: 4 hrs.**

**Full Marks: 100**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

**Group – A**

(Multiple Choice Type Questions)

1 x 10 = 10

1. Choose the correct alternative from the following :
  - i) What does SDN stand for in the context of computer networks?
 

a Secure Data Networking	b Simplified Data Networking
c Software-Defined Network	d Static Data Networking
  - ii) What is the primary purpose of the Cloud Cube Model?
 

a To categorize cloud networks based on their deployment models	b To define the NIST reference model for cloud computing
c To identify the boundaries of cloud services between providers and consumers	d To categorize cloud networks based on their physical location, ownership, security boundary, and sourcing
  - iii) Indicate what does "Perimeterized (Per) / De-perimeterized (D-p)" refer to, in the Cloud Cube Model.
 

a Ownership of the cloud infrastructure	b The physical location of data
c The security boundary of the cloud	d Sourcing of the cloud service
  - iv) Choose from the following which is related to service middleware that plays a central role in SOA?
 

a Apache Camel	b MuleSoft Anypoint Platform
c Amazon S3 (Simple Storage Service)	d Enterprise Service Bus (ESB)
  - v) Choose, which of the following is related to discovering and publishing web services in SOA
 

a SOAP	b UDDI
c JSON	d WSDL

- vi) Select what does the automated scaling listener do when the workload exceeds performance thresholds, in the process of dynamic horizontal scaling,
- a It triggers a system shutdown.
  - b It initiates the scaling process based on a predefined policy.
  - c It sends a signal to the resource replication mechanism to reduce resource instances.
  - d It monitors the cloud service to determine if predefined capacity thresholds are being exceeded.
- vii) Select. What does Amazon WorkMail offer as a service?
- a Amazon Chime
  - b Managed email and calendaring
  - c Amazon Connect
  - d Amazon Amplify
- viii) Select the correct meaning of virtualization?
- a A technology that enables the creation of virtual versions of physical resources
  - b A type of hardware architecture
  - c A programming language used for cloud computing
  - d A type of network topology
- ix) Select which of the following term refers to "abuse of the cloud"
- a. Using cloud resources for legitimate purposes
  - b. Conducting nefarious activities from the cloud, such as launching DDoS attacks or distributing spam and malware
  - c. Efficiently managing cloud resources
  - d. Securely sharing data in the cloud
- x) Select the correct attack that is commonly used against Web sites and can result in the contents of a database being dumped to the attacker or altered when user input is not properly filtered?
- a. Phishing
  - b. Cross-site scripting
  - c. SQL injection
  - d. Man-in-the-middle attack

### Group – B

(Short Answer Type Questions)

5 x 6 = 30

Answer the following questions :

- |    |   |       |
|----|---|-------|
| 2. | Define elasticity in the context of cloud computing.  | 5     |
| 3. | Differentiate between Infrastructure as a Service (IaaS) and Software as a Service (SaaS) cloud service models. | 5     |
| 4. | Explain cloud bursting with diagram.  | 3+2=5 |
| 5. | Write about the limitations of Utility Computing?   | 5     |
| 6. | Write about the concept of Utility Computing and write its advantages.  | 2+3=5 |
| 7. | Write about the broad classes of risk associated with cloud.  | 5     |

**Group – C**

(Long Answer Type Questions)

10 x 6 = 60

Answer the following questions :

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|-----|--|----------|
| 8.  | What do you mean by deployment model in cloud? What are the four deployment models of cloud computing? Provide a brief description of each.            | 2+8 =10  |
| 9.  | What is distributed system? Explain various types of distributed system.   | 1+9=10   |
| 10. | Explain mechanism of dynamic horizontal scaling with appropriate diagram.  | 10       |
| 11. | Write about service level agreement and write about objectives of SLA. Explain SLA Life Cycle with diagram.  | 1+4+5=10 |
| 12. | Write about Virtual machine security. Discuss about VM based threats and VMM-based threats.  | 2+8=10   |
| 13. | Write about various amazon services with respect to Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) | 10       |
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