Time: 3 Hour



Maximum Marks: 50

## Section- A

***Note: Attempt ANY FIVE Questions.*** 5 x 4 = 20 marks

(I) How utility computing benefits user?

(II) Imagine that you are running a website that is subject to wide fluctuations in demand, such as a ticket-selling system for events. How would you plan for migrating the system from traditional to cloud?

(III) You are a member of a 4 - member project team. During the covid time, all the members are struck in their native places. With no means of physical meeting, your project has come to a halt. Give the solution how cloud services can help you and your team in this pandemic time.

(IV) Compare the different types of storage available in OpenStack? How a user can choose the storage backend for OpenStack?

(V) What's the difference between hybrid cloud and multi cloud? How can organizations make the multi cloud solutions work together? What are the challenges that the organization will face?

(VI) Discuss cloud security with respect to infrastructure level and network level?

## Section- B

***Note: Attempt ALL Questions.*** 5 x 3 = 15 marks

(I) Why traditional security measures do not work in cloud computing? Explain any one method that can be used for cloud security?

(II) What are the areas for security concerns in cloud computing? Explain each in brief.

(III) Why a user faces more security challenges after installing the VMM on a OS compare to one who have installed directly on hardware?

(IV) Why virtual security is more hard to attain? How does it differ from physical security?

(V) Explain what is SOA governance and what are its functions. Are web services and SOA the same? Explain.

## Section- C

***Note: Attempt ANY THREE Questions.*** 3 x 5 = 15 marks

(I) Not having experts in the domain of Multi cloud is restricting its growth. Explain the statement. How does the security concept changes to when data is at rest and when data is at transit? Discuss the security approach to both scenarios.

(II) Having a large number of virtual machine may increase the security risks associated with system. Discuss the problem by citing the virtual threats that may come due to this problem. A malicious VM can bring the entire system down.

security ri[illegible] associated with system. Discuss the problem by citing the virtual threats that may come due to this problem. A malicious VM can bring the entire system down. Justify.

(III) What is the problem that is associated with when some resources and data previously confined to a private network are now exposed to the Internet, and to a shared public network belonging to a third-party cloud provider?

(IV) How DoS and DDoS attack can cause harm to Cloud Servers? In cloud who is responsible for security? Justify.

**Note: Attempt All the Qu**

## Section – A (3 x 2 = 6 Marks)

I. How Web 2.0 is different from Web 1.0? Discuss the advantages of Web 2.0 over Web 1.0.

II. Explain the different components of OpenStack.

III. Compare static, dynamic and centralized load balancing algorithm based on their knowledge base, usage and drawbacks?

## Section – B (3 x 3 = 9 Marks)

I. A software company uses a software architecture model in which all the software components are assembled as one single unit. Suggest a software architecture model that brings flexibility to the above mentioned architecture model. Also compare the proposed architecture model with the fine grain- level of software architecture model.

II. There is a service provider, who provides a service that returns a country name to which a given IP address belongs. The method containing the logic is named as IPtoGeo( ), that receives IP address and returns the country name and is defined in class "location.java" at server side. So, demonstrate the complete client- server interaction if SOA model is followed, to use the service between client and server.

III. A company is planning for a highly available system over cloud. So, the company contacted some provider, who claims the availability of one server as 99% during a month. In the SLA, they agreed on downtime of not more than 4 minutes per month. So, how many servers are required to support the claim mentioned in SLA? Also, design a highly available system using number of servers calculated in previous question.

## BCSE0207: Cloud Computing

**Time : 1 Hour** **Maximum Marks: 15**

**Section – A**

3 x 2 = 6 Marks

**I.** What is multi cloud management system? You are solution architect in an organization that wants to use multi cloud for its business environment. What are the benefits and challenges that you will face as a solution architect?

**II.** Define SOA. Are web services and SOA the same? In SOA do we need to build a system from scratch?

**III.** With respect to SaaS, discuss the following terms:

a. Open SaaS

b. Web OS

**Section – B**

3 x 3 = 9 Marks

**I.** Describe OpenStack. What are the key components of OpenStack?

**II.** Discuss the differences between:

a. OpenStack and AWS

b. Web1.0 and 2.0

c. Swift and Cinder

**III.** Discuss the architecture of OpenStack. What are the different storage used in OpenStack. Discuss them in brief.

**Note: Attempt all the questions** **7*5= 35 Marks**

1. Define Hypervisor. How Hypervisors are different from Virtual Machine? Specify the key components of VM infrastructure?
2. What is the usage of virtualization platform in implementing cloud? How resource virtualization can help an organization to reduce the cost?
3. Discuss the three layers of cloud deployment model. What does each layer provide to the user? An enterprise needs highly controlled storage and access to their databases as well as managing the infrastructure for web front ends and other applications. They have a large existing IT infrastructure and they are continually expanding the capabilities. Which cloud computing model will satisfy all their current needs and enable them to reduce cost?
4. Compare the different types of storage available in OpenStack? How a user can choose the storage backend for OpenStack?
5. What's the difference between hybrid cloud and multi cloud? How can organizations make the multi cloud solutions work together? What are the challenges that the organization will face?
6. Discuss cloud security with respect to infrastructure level and network level?
7. Discuss the security concept in VM? How a rouge VM can bring the entire organization down?

## Section-B

**I. Note: Attempt all the questions** **3 x 2 =6 Marks**

**A.** Why traditional security measures do not work in cloud computing? Explain any one method that can be used for cloud security?

**B.** What are the areas for security concerns in cloud computing? Explain each in brief.

**C.** Discuss the difference between

a) Internal and External attackers.

b) Authentication and Authorization

**II. Note: Attempt all the questions** **3 x 3 =9 Marks**

**A.** Compare the cost of Scaling the Hardware in traditional and cloud economic? Which one is more beneficial and why?

**B.** What is IAM service in AWS? Discuss users and group with respect to IAM service. Also, mention the role of users and groups

**C.** Write a short note on (Any Two):

a) Service Hijacking.

b) Data leakage

c) Data Stores in Cloud