SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF CYBER SECURITY

QUESTION BANK

VI SEMESTER

1923603 – SECURITY IN CLOUD COMPUTING

Regulation – 2019

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Prepared by

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SUBJECT: 1923603 – SECURITY IN CLOUD COMPUTING
SEM/YEAR: VI / III

UNIT I - INTRODUCTION & ARCHITECTURAL FRAMEWORK
Basics of distributed concepts, Grid computing: Architecture – Virtual organization – Web services vs grid services, Grid vs cloud computing, Roots of cloud computing, Essential Characteristics. SPI framework, Cloud deployment models: Public cloud – Private cloud – Hybrid cloud, Expected benefits.

PART – A			
Q.No	Question	Level	Competence
1	Identify Distributed Computing and its features	BTL3	Applying
2	Point out the properties of Distributed Computing.	BTL4	Analyzing
3	What is Middleware?	BTL1	Remembering
4	Discuss about NOW Configuration.	BTL2	Understanding
5	Outline the advantages of Distributed Computing.	BTL2	Understanding
6	Explain with an example how Distributed Computing resolves the issue of geographical sepration.	BTL1	Remembering
7	Define Message passing.	BTL1	Remembering
8	Recall the term Gird Computing.	BTL1	Remembering
9	Explain Parallel Computing. Where is it used?	BTL2	Understanding
10	Define Resource Broker.	BTL1	Remembering
11	Generalize your view about Virtual Organization.	BTL6	Creating
12	Infer the advantages and disadvantages of Grid Computing.	BTL4	Analyzing
13	Identify how webservice works?	BTL3	Applying
14	Define Webservice.	BTL2	Understanding
15	Show the components of Webservice	BTL3	Applying
16	Assess the term Cloud Computing.	BTL5	Evaluating
17	List the Roots of Cloud Computing.	BTL1	Remembering
18	Point out some examples of Iaas Cloud service.	BTL4	Analyzing
19	Discuss SPI Framework.	BTL6	Creating
20	Assess whether Netflix comes under Saas cloud service.	BTL5	Evaluating
21	Identify why Cloud Computing is termed as pay per use model.	BTL3	Applying
22	What is Web 2.0?	BTL2	Understanding
23	Differentiate between Cloud Computing and Gird Computing.	BTL4	Analyzing
24	Explain the benefits of Saas Model.	BTL5	Evaluating

PART – B			
Q.No	Question	Level	Competence
1	Explain the properties of Distributed Computing with Illustration. (13)	BTL1	Remembering
2	With the help of a neat architecture diagram explain Distributed Computing.(13)	BTL1	Remembering
3	Describe in detail about the working of Gird Computing.(13)	BTL1	Remembering
4	(i) Describe about Virtual Organization.(7) (ii) Difference between Grid and Cloud Computing (6)	BTL2	Understanding
5	List the components of Grid Computing.(13)	BTL2	Understanding

6	Describe in detail about Webservice and its working with an example. (13)	BTL1	Remembering
7	Examine about the roots of cloud computing and explain them in brief.(13)	BTL3	Applying

8	Explain the following:
	   i) Saas. (7)
	   ii) Characteristics of Cloud Computing. (6)
		BTL4	Analyzing

9	Explain in detail about Elasticity in Cloud and On-demand Provisioning. (13)	BTL4	Analyzing
10	Explain the term – Community Cloud. (13)	BTL2	Understanding
11	Compare and contrast the cloud deployment models.	BTL3	Applying
12	Suggest a suitable deployment Model for Mr.Arun and team. They are owning a company and Ms.Ramya is joing their team from Australia. The team wants to know a suitable delpoyment model for them to build the appliaction. They aren't having any tools, software to build. They need to build the work from scratch. (13)	BTL6	Creating
13	Draw and explain the architecture of Cloud. (13)	BTL 5	Evaluating
14	Analyze and explain Saas and Iaas framework with example. (13)	BTL4	Analyzing
15	Briefly explain SPI Framework. (13)	BTL2	Understanding
16	Compare and contrast Private and Public Cloud. (13)	BTL3	Applying
17	Define Hybrid cloud and explain in detail. (13)	BTL 5	Evaluating

PART - C			
Q.No	**Question**	**Level**	**Competence**
1	Explain Distribued Computing in detail. (15)	BTL5	Evaluating
2	Discuss Grid Computing in detail. (15)	BTL6	Creating
3	Discuss Cloud Computing in Detail. (15)	BTL6	Creating
4	Explain what is SPI Framework, and its types in brief.	BTL5	Evaluating
5	With the help of a neat block diagram explain the basic Cloud Deployment Models? (15)	BTL5	Evaluating

UNIT II - CLOUD COMPUTING SECURITY CHALLENGES

Security Policy Implementation, Policy Types, Senior Management Statement of Policy, Regulatory Policies, Advisory Policies, Informative Policies, Computer Security Incident Response Team (CSIRT), Virtualization Security Management, Virtual Threats, Hypervisor Risks, Increased Denial of Service Risk, Securing VM Remote Access.

PART – A

Q.No	Question	Level	Competence
1	What are the general management processes that are required regardless of the nature of the organization's business?	BTL1	Remembering
2	Analyze the term Policy.	BTL4	Analyzing
3	what are the types of policies?	BTL2	Understanding
4	what are advisory Policies?	BTL1	Remembering
5	what are regulatory Policies?	BTL5	Evaluating
6	Define the main tasks in CERT.	BTL2	Understanding
7	Discuss the need for Incident handling.	BTL6	Creating
8	What are the roles that the administrators are configured in vms?	BTL1	Remembering
9	Give the types of Virtual Environments.	BTL2	Understanding
10	How do you drop triggers?	BTL1	Remembering
11	Mention some of the vulnerabilities that are exposed to any malicious-minded individuals.	BTL6	Creating
12	Give an example of Advisory policy.	BTL3	Applying
13	How can be vulnerability/threat matrix classified?	BTL4	Analyzing
14	What is a Hypervisor?	BTL1	Remembering
15	What is VM Escape	BTL3	Applying
16	What can attackers do if they get physical access to the host?	BTL5	Evaluating
17	What are the seven best security implementation techniques that are required?	BTL1	Remembering
18	Mention some of the hardening techniques that must be implemented to maintain the security posture .	BTL2	Understanding
19	What is attack surface?	BTL3	Applying
20	Mention the steps involved in hardening the virtual machine?	BTL4	Analyzing
21	When can a VM monitor be root secure?	BTL4	Analyzing
22	What are the standard practices for remote administration?	BTL 3	Applying
23	Mention some of the recommendations for hardening virtualized systems by Tavis Ormandy.	BTL5	Evaluating
24	With a neat labeled diagram show how the policies relate to each other hierarchically.	BTL 2	Understanding

PART – B

Q.No	Question	Level	Competence
1	Explain about security policy implementation and show how it relates to each other.	BTL1	Remembering
2	What are policies ? List and explain it's various types.	BTL2	Understanding
3	What is CERT explain in detail.	BTL1	Remembering

4	Explain what is Computer emergency response team and the activities that are performed by them.	BTL3	Applying
5	i) Write the distinct ways in which virtual environment gets compromised. (7) ii) Explain about the roles that are provided by administrators. (6)	BTL2	Understanding
6	Explain a short note on virtualization threats.	BTL1	Remembering
7	Examine about (i) The vulnerabilities that are unique to virtual machines. (6) (ii) According to Burton Group what are the five immutable laws virtualization security?(7)	BTL3	Applying
8	Explain the following with examples: i) Show how VMware's ESX server vulnerabilities can be categorized, as interpreted by the DoD and Describe about ESX server architecture. (3) ii) Show VMware's approach towards the virtualized infrastructure.. (3)	BTL4	Analyzing
9	What are hypervisors and its major vulnerabilities? (13)	BTL4	Analyzing
10	Write in detail about any four best practices for securing virtualized systems.(13)	BTL2	Understanding
11	Mention some important VM hardening techniques..(13)	BTL1	Remembering
12	(i) How can physical access to the host be limited. (6) (ii) Write a note on updating and Patching and enabling Perimeter Defense on the VM.(7)	BTL6	Creating
13	Explain the steps to harden the host domain. (13)	BTL5	Evaluating
14	Write in brief about the additional VM recommendations given by Tavis Ormand. (13)	BTL4	Analyzing
15	How to secure VM remote access? How to harden virtual machine? (13)	BTL3	Applying
16	Discuss about increased Denial of service risk. (13)	BTL2	Understanding
17	Explain the framework – CSIRT. (13)	BTL5	Evaluating

PART – C			
Q.No	Question	Level	Competence
1	Explain the security implementation techniques that are required for most computer systems. (15)	BTL6	Creating
2	Explain the measures to harden the virtual machines. (15)	BTL5	Evaluating
3	Discuss about the threats to virtualized systems. (15)	BTL5	Evaluating
4	Write about the work of Computer Security Incident Response Team. (15)	BTL6	Creating
5	Write about security policy implementation and it's types. (15)	BTL5	Evaluating

UNIT III - CLOUD COMPUTING SECURITY ARCHITECTURE

Architectural Considerations, Security Management, Security Awareness, Training, and Education, Trusted Cloud Computing , Secure Execution Environments and Communications, Micro architectures, Memory Cards Smart Cards, Biometrics, Biometrics, Autonomic Security.

PART – A

Q.No	Question	Level	Competence
1	Define Security Management.	BTL2	Understanding
2	Discuss the types of Cloud Security control.	BTL2	Understanding
3	Analyze about Sensitive data..	BTL4	Analyzing
4	Discuss about Confidential data.	BTL4	Analyzing
5	List the types of information classification concepts.	BTL4	Analyzing
6	State the advantage of Information classification.	BTL1	Remembering
7	Show the need for data classification schema for sensitive information.	BTL3	Applying
8	Recall Information Classification Procedurs.	BTL1	Remembering
9	Explain security awareness.	BTL5	Evaluating
10	Examine about training and education.	BTL3	Applying
11	Define trusted cloud computing.	BTL1	Remembering
12	Write the types of trainig related to cloud security.	BTL1	Remembering
13	Discuss the characteristics of trusted cloud computing.	BTL6	Creating
14	Show the features that the secure cloud computing communication should ensure.	BTL1	Remembering
15	What is confidentiality?	BTL2	Understanding
16	What is Virtual Private Network?	BTL3	Applying
17	Discuss the elements of Public Key infrastructure	BTL6	Creating
18	What do you mean by static and dynamic password.	BTL5	Evaluating
19	What is meant by Public key infrastructure.	BTL1	Remembering
20	What are biometrics?	BTL2	Understanding
21	Define smartcard.	BTL2	Understanding
22	List the types of token and explain the same.	BTL3	Applying
23	What is a digital certificate?	BTL4	Analyzing
24	Recall the term VPN Tunneling.	BTL5	Evaluating

PART – B

Q.No	Question	Level	Competence
1	Illustrate with an example on Information Classification. (13)	BTL6	Creating
2	Write a note on security awareness, training and education.(13)	BTL2	Understanding
3	What is Explain secure communication ? (13)	BTL1	Remembering
4	Illustrate trusted cloud computing an example (13)	BTL3	Applying
5	(i) What are the complementary actions in cloud security (6) (ii) Discuss about Cloud Security control. (7)	BTL2	Understanding
6	Discuss in detail, about public key infrastructure. (13)	BTL2	Understanding
7	Explain about Virtual Private network with neat diagram .(13)	BTL5	Evaluating
8	What is Microarchitecture explain in detail. (13)	BTL3	Applying

9	(i) Show how to implement Identity Management.(7) (ii) Show how to implement Network to network VPN. (6)	BTL5	Evaluating
10	Write a brief note on Identity Management and access control.	BTL4	Analyzing
11	Explain about Biometrics.(13)	BTL1	Remembering
12	Explain about Autonomic Security in detail. (13)	BTL1	Remembering
13	Describe in detail about the following (i) Vpn Tunneling (7) (ii) Remote access VPN. (6)	BTL1	Remembering
14	Analyze the following: (i) Autonomic Protection. (7) (ii) Autonomic Self-healing. (6)	BTL4	Analyzing
15	Explain with an illustration on VPN Configuration. (13)	BTL3	Applying
16	Define the types of Micro architecture in brief. (13)	BTL2	Understanding
17	Write a note on Passwords and tokens. (13)	BTL4	Analyzing

PART - C			
Q.No	Question	Level	Competence
1	Write a note on Biometrics in detail. (15)	BTL5	Evaluating
2	Write a note on Virtual Private Network with neat diagram. (15)	BTL6	Creating
3	Discuss in detail about Secure execution environments and communications. (15)	BTL6	Creating
4	What is Microarchitecture? Explain in detail. (15)	BTL5	Evaluating
5	Explain in detail about Identity Management and access control. (15)	BTL6	Creating

UNIT IV - PROTECTION AND PRIVACY OF INFORMATION ASSETS IN THE CLOUD

Three Usage Scenarios Understanding the Characteristics , Service Based , Scalable and Elastic,

Authentication and Authorization , The Cloud Security Continuum and a Cloud Security Reference Model,

Data Privacy in the Cloud.

PART – A

Q.No	Question	Level	Competence
1	Define the three usage scenarios.	BTL1	Remembering
2	Give the list to whom the three usage scenarios are applicable.	BTL2	Understanding
3	Analyze some questions to be considered from customer point of view.	BTL4	Analyzing
4	Analyze some questions to be considered from cloud provider's point of view.	BTL4	Analyzing
5	Discuss the term Service.	BTL2	Understanding
6	Summarize Security Reference Model.	BTL2	Understanding
7	What is Cloud Security Continuum?	BTL1	Remembering
8	Assess about Principle of Atomicity	BTL5	Evaluating
9	Show the Elements included in Cloud Security Continuum.	BTL3	Applying
10	Demonstrate Data Privacy with example.	BTL3	Applying
11	Explain Principle of Atomicity.	BTL5	Evaluating
12	Discuss the elements in CSS Model.	BTL6	Creating
13	Define the need for Data Privacy.	BTL1	Remembering
14	What is Data Classification.	BTL6	Creating
15	List the components of SOA.	BTL1	Remembering
16	Examine the need for SOA.	BTL3	Applying
17	Define Cloud Computing quoted by NIST.	BTL1	Remembering
18	Give the need for privacy and protection of Data.	BTL2	Understanding
19	Differentiate normal security protocols with CSS Model.	BTL4	Analyzing
20	Define the need for Cloud Security Continuum.	BTL1	Remembering
21	Illustrate the reference model for Cloud Security Continuum.	BTL5	Evaluating
22	State the property – locality independence in cloud.	BTL4	Analyzing
23	Define Information Lifecycle Management.	BTL2	Understanding
24	Define the need for addressing the data in flight and rest.	BTL3	Applying

PART - B

Q.No	Question	Level	Competence
1	What are the three usage scenarios explain the same. (13)	BTL1	Remembering
2	Illustrate the characteristics with an example. (13)	BTL3	Applying
3	Write a short note on: i) Service Based. (6) (i) Scalable and Elastic. (7)	BTL1	Remembering
4	Explain the characteristic Authentication and Authorization. (13)	BTL3	Applying
5	Illustrate the cloud Security Continuum with neat diagram. (13)	BTL6	Creating
6	Explain about the Cloud Security Reference model . (13)	BTL5	Evaluating
7	What is Data Privacy in Cloud. (13)	BTL4	Analyzing
8	Write a short note on: i) Service Based. (6)	BTL4	Analyzing

		ii) Authentication and Authorization. (7)		
9		Develop a security reference model for an organization. Consider the organization implements public cloud strategy.	BTL1	Remembering
10		Tabulate the service models and the corresponding deployment model that suits well for the same. (13)	BTL2	Understanding
11		Tabulate the characteristics of Cloud from Consumer Perspective. (13)	BTL4	Analyzing
12		Discuss on Authentication and Authorization and its significance. (13)	BTL2	Understanding
13		Discuss the Scalable cloud characteristic and its significance. (13)	BTL1	Remembering
14		Discuss the characteristics of Cloud from Provider Perspective. (13)	BTL2	Understanding
15		What is Privacy? Explain the Cloud Privacy. (13)	BTL3	Applying
16		Explain about the characteristics of the cloud. (13)	BTL2	Understanding
17		Define a security reference model based on the characteristics of the cloud.(13)	BTL5	Evaluating

PART - C			
Q.No	Question	Level	Competence
1	Discuss the characteristics of Cloud with illustration. (15)	BTL5	Evaluating
2	Discuss the three usage scenarios and explain in detail. (15)	BTL6	Creating
3	Explain the Cloud Security Continuum in detail with neat diagram. (15)	BTL5	Evaluating
4	Explain the Cloud Security reference model. (15)	BTL6	Creating
5	Discuss about the Data Privacy in the Cloud. (15)	BTL6	Creating

UNIT V – CLOUD MORPHING: SHAPING THE FUTURE OF CLOUD COMPUTING SECURITY AND AUDIT

Cloud Security Alliance; Cloud Morphing Strategies, Virtual Security, and Data in the Cloud, Cloud Storage,

and Database Classes in the Cloud, Perimeter Security, and Cryptographic Protection of the Data.

PART – A			
Q.No	Question	Level	Competence
1	What does a key management cloud does?	BTL4	Analyzing
2	Mention the audit processes that can be maintained by a class, object instances, and attribute values?	BTL1	Remembering
3	What is fail fast?	BTL3	Applying
4	What does CSA trusted cloud initiative do?	BTL1	Remembering
5	How data is managed in cloud?	BTL5	Evaluating
6	Why companies prefer cloud?	BTL1	Remembering
7	Who are cloud providers and what do they do?	BTL2	Understanding
8	What is SOA?	BTL2	Understanding
9	What is CSA?	BTL4	Analyzing
10	Name any 4 key deliverables from CSA	BTL2	Understanding
11	What is cloud audit?	BTL3	Applying
12	How cloud audit helps a provider?	BTL1	Remembering
13	Define hypervisor.	BTL6	Creating
14	Define the responsibilities of a hypervisor.	BTL1	Remembering
15	What is cloud storage?	BTL2	Understanding
16	What is scalar type in cloud storage?	BTL3	Applying
17	Differentiate blob and clob.	BTL1	Remembering
18	What is meant by database classes in cloud?	BTL5	Evaluating
19	How Cryptographic Protection of the Data workout in cloud?	BTL4	Analyzing
20	How audit process can be achieved using geographic location policies	BTL6	Creating
21	What is perimeter security?	BTL3	Applying
22	How to manage perimeter security?	BTL5	Evaluating
23	List some morphing strategies.	BTL4	Analyzing
24	Explain the term cloud security alliance.	BTL4	Analyzing

PART - B			
Q.No	Question	Level	Competence
1	Describe in detail the key deliverables from CSA.	BTL1	Remembering
2	(i) Describe Cloud Audit 1.0. (9) (ii) Describe the significance of Cloud Audit. (4)	BTL2	Understanding
3	Examine about Virtual Security. How does it improve performance and reliability? (13)	BTL1	Remembering
4	Demonstrate the Cloud Morphing strategies with example. (13)	BTL3	Applying
5	Give a detailed description about Data in the cloud. (13)	BTL1	Remembering
6	Describe the different types of Cloud Storage and explain the same. (13)	BTL2	Understanding
7	Explain about Database Classes in the Cloud. (13)	BTL2	Understanding
8	Show the various levels of Perimeter Security and explain the same. (13)	BTL3	Applying
9	With example explain Cryptographic Protection of the Data. (13)	BTL1	Remembering

10	Analyze about the Key Management strategy in Cloud. (13)	BTL4	Analyzing
11	Analyze about Cloud Auditing in detail. (13)	BTL4	Analyzing
12	Examine how to manage multitenant environments in Cloud. (13)	BTL4	Analyzing
13	Summarize in detail about Data handling in Cloud. (13)	BTL5	Evaluating
14	What is the need for Database classes. Explain with a real time example. (13)	BTL6	Creating
15	Discuss the advantage of Cloud auditing. Mention the types and explain them in brief. (13)	BTL2	Understanding
16	Discuss about the need for Cloud Security and explain a real time situation of how you deploy the cloud features. (13)	BTL5	Evaluating
17	Generalize your views about the threats that happen due to the absence of the Security feature in the cloud. (13)	BTL3	Applying

PART - C			
Q.No	Question	Level	Competence
1	Write about Cloud Security Alliance and it's key deliverables. (15)	BTL6	Creating
2	Describe about virtual security with proper illustration. (15)	BTL5	Evaluating
3	Why Cryptographic protection of data in the cloud is problematic. (15)	BTL5	Evaluating
4	Write in detail about cloud storage. (15)	BTL6	Creating
5	Write about perimeter security and cryptographic protection of the data. (15)	BTL6	Creating