CS 8791– CLOUD COMPUTING

IMPORTANT QUESTIONS

	UNIT I INTRODUCTION			
	Introduction to Cloud Computing – Definition of Cloud – Evolution of Cloud Computing –Underlying Principles of Parallel and Distributed Computing – Cloud Characteristics – Elasticity in Cloud – On-demand Provisioning.			
	PART-A			
Q.No	**Questions**		**BT Level**	**Competence**
1	What is meant by the term Cloud Computing?	2	BTL -1	Remember
2	List the main characteristics of cloud computing	2	BTL -1	Remember
3	Compare parallel computing and distributed computing.	2	BTL -5	Evaluate
4	What are the service models available in cloud computing?	2	BTL -1	Remember
5	State Deployment models of cloud computing.	2	BTL -1	Remember
6	Point out the basic operations of VM.	2	BTL -4	Analyze
7	Differentiate cloud computing and grid computing.	2	BTL -4	Analyze
8	What is Hardware Virtualization?	2	BTL -1	Remember
9	Give the advantages of cloud computing	2	BTL -2	Understand
10	Analyze Autonomous computing and Utility Computing.	2	BTL -4	Analyze
11	Show the difference between Thin and Thick client.	2	BTL -3	Apply
12	Draw a neat diagram for cloud components.	2	BTL -6	Create
13	Illustrate the virtual Appliances in cloud computing.	2	BTL -3	Apply
14	Examine the challenges and Risks available in cloud computing.	2	BTL -3	Apply
15	Formulate CCIF.	2	BTL -6	Create
16	Assess properties of Cloud Computing?	2	BTL -5	Evaluate
17	Express data center.	2	BTL -2	Understand
18	Explain the challenges in Cloud technologies.	2	BTL -5	Evaluate
19	What is meant Scale-Up scale-Down?	2	BTL -1	Remember
20	Interpret distributed computing.	2	BTL -2	Understand
	PART-B			
1	Describe in detail about practical examples of cloud systems exist across market segments.	13	BTL -1	Remember
2	Discuss in detail about view of cloud computing with neat	13	BTL -2	Understand

	diagram.			
3	Illustrate in detail about parallel and distributed computing.	13	BTL -3	Apply
4.	List out and discuss the innovative characteristic of cloud computing.	13	BTL -2	Understand
5	Describe in detail about major Deployment Models and services for cloud computing.	13	BTL -1	Remember
6	Describe in detail about cloud computing reference model with diagram.	13	BTL -1	Remember
7	Which are the technologies that cloud computing relies on?	13	BTL -3	Apply
8	i) Give the importance of cloud computing. ii) List the core features of cloud computing.	7 6	BTL -2	Understand
9	Write short notes on: i) Revolution of Web 2.0. ii) Some examples of Web 2.0 applications.	 7 6	BTL -6	Create
10	Compare the three milestones, which led to cloud computing in detail.	13	BTL -4	Analyze
11	Explain the following challenges in cloud. i) Security. ii) Datalock-in and Standardization. iii) Fault tolerance and Disaster recovery.	 5 5 3	BTL -5	Evaluate
12	Summarize the challenges still open in cloud computing.	13	BTL -4	Analyze
13	Outline the computing platforms and technologies for the development of cloud computing applications.	13	BTL -1	Remember
14	How does cloud development differentiate from traditional software development?	13	BTL -4	Analyze
	PART C			
1	Briefly explain each of the cloud computing services. Identify two cloud providers by company name in each service category.	15	BTL -6	Create
2	It is said, 'cloud computing can save money'. What is your view? Can you name some open source cloud computing platform databases? Explain any one database in detail.	15	BTL -5	Evaluate
3	What are the components of distributed system? Draw and explain its layered view architecture.	15	BTL -5	Evaluate
4	Formulate different computing paradigms. Discuss in detail different system models for distributed and cloud computing.	15	BTL -6	Create
	UNIT II CLOUD ENABLING TECHNOLOGIES			
	Service Oriented Architecture – REST and Systems of Systems – Web Services – Publish - Subscribe Model – Basics of Virtualization – Types of Virtualization – Implementation Levels of Virtualization – Virtualization Structures – Tools and Mechanisms – Virtualization of CPU –Memory – I/O Devices –			

	Virtualization Support and Disaster Recovery.			
	PART A			
1	What are the major roles within SOA?	2	BTL -1	Remember
2	What is mean by Virtualization?	2	BTL -1	Remember
3	Express the levels of virtualization.	2	BTL -2	Understand
4	Illustrate Web services.	2	BTL -3	Apply
5	Define virtual machine monitor.	2	BTL -1	Remember
6	Comment on REST Architectural Elements.	2	BTL -4	Analyze
7	Give the sample REST Request-Response for creating a S3 Bucket.	2	BTL -2	Understand
8	List some core WS-Specification areas.	2	BTL -5	Evaluate
9	Analyze the relative merits of virtualization at various levels.	2	BTL -4	Analyze
10	Differentiate full virtualization and para-virtualization.	2	BTL -4	Analyze
11	Define memory virtualization.	2	BTL -1	Remember
12	How will you implement storage virtualization at the server level?	2	BTL -6	Create
13	Illustrate the CPU virtualization.	2	BTL -3	Apply
14	Show the requirements of VMM.	2	BTL -3	Apply
15	Write a short note about desktop virtualization.	2	BTL -6	Create
16	Discuss operating system level of virtualization.	2	BTL -2	Understand
17	State the responsibilities of VMM.	2	BTL -1	Remember
18	Explain hardware abstraction level of virtualization?	2	BTL -5	Evaluate
19	What is mean by I/O virtualization?	2	BTL -1	Remember
20	Express host based virtualization.	2	BTL -2	Understand
	PART-B			
1	Explain in detail about the characteristics and features of SOA.	13	BTL -1	Remember
2	Analyze the web services interaction reference scenario.	13	BTL -4	Analyze
3	Explain the different phenomenon that has gained an interest towards virtualization technologies.	13	BTL -4	Analyze
4	i. Mention about virtual machine manager. ii. Illustrate the three major components of virtualized environment.	7 6	BTL -3	Apply
5	Describe in detail about the REST a software architecture style for distributed systems.	13	BTL -2	Understand
6	Analyze the pros and cons of virtualization in detail.	13	BTL -4	Analyze
7	Discuss in detail about the taxonomy of virtualization techniques.	13	BTL -2	Understand
8	Explain what you understand the technologies that make up the core of today's web services.	13	BTL -5	Evaluate
9	Describe in details the tools and mechanisms for virtualization.	13	BTL -1	Remember

10	i. Describe the different types of virtualization. ii. What is server virtualization? Explain parallel processing.	7 6	BTL -1	Remember
11	Illustrate the following Virtualization in detail i. CPU virtualization ii. Memory Virtualization iii. I/O Devices	 5 4 4	BTL -3	Apply
12	i. Define Server virtualization. ii. Describe in detail about server virtualization in detail with example	3 10	BTL -1	Remember
13	i. Express desktop virtualization. ii Discuss in detail about it with appropriate example	3 10	BTL -2	Understand
14	i. Compose the advantages of application virtualization. ii. Discuss in detail about the application virtualization	5 8	BTL -6	Create
	PART C			
1	Highlight the key points and identify the distinctions in different approaches of virtualization levels. Discuss their relative advantages, shortcomings and limitations. Also identify example systems implemented at each level	15	BTL -6	Create
2	Explain the differences between hypervisor and para-virtualization and give one example VMM (virtual machine monitor), that was built in each of the two categories.	15	BTL -5	Evaluate
3	What is the difference between recovery time objective and recovery point objective? How do they depend on each other? Justify your answer with appropriate examples.	15	BTL -5	Evaluate
4	Explain about Virtualization for Linux and Windows and NT Platform. Design the process of Live Migration of VM from one host to another.	15	BTL -6	Create
	UNIT III CLOUD ARCHITECTURE, SERVICES AND STORAGE			
	Layered Cloud Architecture Design – NIST Cloud Computing Reference Architecture – Public, Private and Hybrid Clouds - laaS – PaaS – SaaS – Architectural Design Challenges – Cloud Storage – Storage-as-a-Service – Advantages of Cloud Storage – Cloud Storage Providers – S3.			
	PART-A			
1	State the types of clouds with proper examples?	2	BTL -1	Remember
2	Define short notes on Community cloud	2	BTL -1	Remember
3	Differentiate Public cloud and Private cloud.	2	BTL -4	Analyze
4	List out the characteristics of SaaS.	2	BTL -1	Remember
5	Tabulate examples provided by platform as a service.	2	BTL -1	Remember
6	Why does one choose public cloud over private cloud? Analyze.	2	BTL -4	Analyze
7	Point out the role of cloud auditor in cloud.	2	BTL -4	Analyze
8	Define the advantages of using the cloud storage.	2	BTL -1	Remember
9	Differentiate cloud consumer and provider	2	BTL -2	Understand

10	Compare service aggregation and service arbitrage	2	BTL -5	Evaluate
11	Show the interaction between the Actors in the cloud computing	2	BTL -3	Apply
12	Draw the diagram for conceptual reference model for cloud	2	BTL -6	Create
13	Demonstrate the types of cloud storage.	2	BTL -3	Apply
14	Illustrate the major activities of cloud provider	2	BTL -3	Apply
15	Identify the key features of S3.	2	BTL -6	Create
16	Express the characteristics of private cloud	2	BTL -2	Understand
17	Discuss any three features of IaaS	2	BTL -2	Understand
18	Summarize the benefits and drawbacks of using "Platform as a Service"	2	BTL -5	Evaluate
19	Define cloud storage.	2	BTL -1	Remember
20	Discuss the benefits and drawbacks of using "Infrastructure as a Service"	2	BTL -2	Understand
	PART-B			
1	i. Describe the NIST cloud computing reference architecture. ii. List the Pros and Cons of cloud computing.	9 4	BTL -1	Remember
2	Explain the various Layered Cloud Architectural Development design for effective cloud computing environment.	13	BTL -5	Evaluate
3	i. Give the diagram of Cloud Computing Reference Architecture. ii. Illustrate in detail about the Conceptual Reference Model ofcloud	3 10	BTL -3	Apply
4	List and discuss the principles for designing public cloud, private cloud and hybrid cloud.	13	BTL -2	Understand
5	Describe Cloud deployment models with neat diagrams.	13	BTL -1	Remember
6	Briefly discuss the architectural design challenges of the cloud.	13	BTL -2	Understand
7	**i.** Discuss the features of Infrastructure as a service. **ii.** Describe in detail about IaaS with example	5 8	BTL -2	Understand
8	i. Point out the features of Platform as a Service ii. Discuss in detail about PaaS with example.	5 8	BTL -4	Analyze
9	Describe in detail about the cloud Storage in detail with example.	13	BTL -1	Remember
10	**i.** Explain the features of software as a Service. **ii.** Discuss in detail about SaaS with example	7 6	BTL -4	Analyze
11	Compare: Public. Private and Hybrid clouds.	13	BTL -4	Analyze
12	i. List out the Cloud Storage Providers. ii. Explain in detail about Amazon Simple Storage Service (S3).	4 9	BTL -1	Remember
13	Demonstrate thee architectural design of compute and storage clouds.	13	BTL -3	Apply

14	Generalize the following in detail i. Google Bigtable Datastore ii. Mobile Me.	 7 6	BTL -6	Create
	PART C			
1	I am starting a new company to analyze videos. I'll need a lot of storage as videos consume quite a bit of disk. Additionally, I'll need ample computational power, possibly running applications concurrently. I have discovered some very good tools to facilitate development in Windows but the deployment will be moreefficiently handled in the Linux environment. All the pointers saythat I need to move to cloud. I have found that SaaS is the most attractive service, followed by PaaS and IaaS, in that order. Given the above information, which service do you recommend? Why?	15	BTL -6	Create
2	Under what circumstances should you prefer to use PaaS over IaaS? Formulate it with an example.	15	BTL -6	Create
3	There are various companies which are offering different applications and services. How the services/applications help a user for business? Explain the economical and operational benefits.	15	BTL -5	Evaluate
4	Describe the following techniques or terminologies used in cloud computing and cloud services .Use a concrete example cloud or case study to explain the addressed technology. i. Green information Technology ii. Multitenent technique	15	BTL -5	Evaluate
	UNIT IV RESOURCE MANAGEMENT AND SECURITY IN CLOUD			
	Inter Cloud Resource Management – Resource Provisioning and Resource Provisioning Methods – Global Exchange of Cloud Resources – Security Overview – Cloud Security Challenges – Software- as-a-Service Security – Security Governance – Virtual Machine Security – IAM – Security Standards.			
	PART-A			
1	What are the security challenges in cloud computing?	2	BTL -1	Remember
2	List the security issues in cloud.	2	BTL -1	Remember
3	Give the different security threats in implementing SAAS.	2	BTL -2	Understand
4	Define security governance.	2	BTL -1	Remember
5	State the third party risk management.	2	BTL -1	Remember
6	Point out the layers in security architecture design.	2	BTL -4	Analyze
7	Discuss change management.	2	BTL -2	Understand
8	Define VM security.	2	BTL -1	Remember
9	Analyze the security awareness in cloud.	2	BTL -4	Analyze
10	Explain data privacy.	2	BTL -4	Analyze
11	Show the uses of application security.	2	BTL -3	Apply

12	Identify the phases of SecSDLC.	2	BTL -6	Create
13	Illustrate the security images.	2	BTL -3	Apply
14	Illustrate anything as a service.	2	BTL -3	Apply
15	Design a suitable security architecture for cloud.	2	BTL -6	Create
16	Express security monitoring.	2	BTL -2	Understand
17	Summarize password assurance testing.	2	BTL -5	Evaluate
18	Explain the issues in providing virtual machine security.	2	BTL -5	Evaluate
19	What is mean by vulnerability assessment?	2	BTL -1	Remember
20	Give the diagram for evolution of cloud services.	2	BTL -2	Understand
	PART-B			
1	Describe in detail with neat diagram in detail about inter cloud resource management.	13	BTL -1	Remember
2	i. What is resource provisioning? ii. Discuss different types of resource provisioning.	2 11	BTL -2	Understand
3	Illustrate the following in detail i. Demand-Driven Resource Provisioning ii. Event-Driven Resource Provisioning iii. Popularity-Driven Resource Provisioning	 5 5 3	BTL -3	Apply
4	i. What are the cloud security challenges? Explain. ii. Explain in detail about security monitoring and incident response.	5 8	BTL -4	Analyze
5	Summarize the following i. Security governance ii. Security monitoring iii. Risk management	 5 5 3	BTL -5	Evaluate
6	Describe the Secure Software Development Life Cycle with neat diagram.	13	BTL -1	Remember
7	Discuss in detail about the security architecture of cloud.	13	BTL -2	Understand
8	i. Define Application security and its use. ii. Illustrate the application security in detail.	3 10	BTL -3	Apply
9	Analyze the methods for providing data security and virtual machine security in cloud.	13	BTL -4	Analyze
10	i. List the different types of services offered by cloud. ii. Describe in detail about Extended Cloud Computing Services	4 9	BTL -1	Remember
11	Recommend a model to provide resource management among multiple cloud providers	13	BTL -6	Create
12	Discuss Virtual Machine Creation and Management in detail with suitable diagram	13	BTL -2	Understand
13	Explain in detail about Global Exchange of Cloud Resources	13	BTL -4	Analyze
14	Describe the following in detail i. Data security ii. Application security iii.Virtual machine security	 4 5 4	BTL -1	Remember

	PART C			
1	Explain the security architecture design of a cloud environment and relate how it can be made possible to include such measures in a typical banking scenario.	15	BTL -6	Create
2	Compare and Contrast the Key privacy issues in Cloud andexplain the steps to overcome the issues with necessary examples.	15	BTL -4	Analyze
3	Assess in detail the Cloud Infrastructure Security at Network, Host and application Level by discussing their pros and cons.	15	BTL -5	Evaluate
4	Explain the baseline Identity and access Management(IAM) factors to be practiced by the stakeholders of cloud services and common key privacy issues likely to happen in the environment	15	BTL -5	Evaluate
	UNIT V CLOUD TECHNOLOGIES AND ADVANCEMENTS			
	Hadoop – MapReduce – Virtual Box -- Google App Engine – Programming Environment for Google App Engine — Open Stack – Federation in the Cloud – Four Levels of Federation – Federated Services and Applications – Future of Federation			
	PART-A			
1	Outline the main services that are offered by AWS.	2	BTL -1	Remember
2	What is the use of cloud Watch in Amazon EC2?	2	BTL -1	Remember
3	Give some of the Applications of GAE.	2	BTL -2	Understand
4	List the functional models of GAE.	2	BTL -1	Remember
5	Name the different modules in Hadoop framework.	2	BTL -1	Remember
6	Analyze Amazon Simple Storage Service (S3).	2	BTL -4	Analyze
7	Point out the use Amazon elastic block store.	2	BTL -2	Understand
8	Define SQS and SNS services of AWS cloud	2	BTL -1	Remember
9	Differentiate name node with data node in hadoop file system.	2	BTL -4	Analyze
10	Analyze the open stack components	2	BTL -4	Analyze
11	State and discover the core components of AppEngine.	2	BTL -3	Apply
12	Identify the development technologies currently supported by AppEngine.	2	BTL -6	Create
13	Demonstrate the AWS Architecture.	2	BTL -3	Apply
14	Illustrate Amazon EC2 and its basic features.	2	BTL -3	Apply
15	Create a DataStore. What type of data can be stored in it?	2	BTL -6	Create
16	Express What is a bucket? What type of storage does it provide?	2	BTL -2	Understand
17	Explain the compute services offered by AppEngine.	2	BTL -5	Evaluate
18	Discuss how a data is read from hadoop URL.	2	BTL -5	Evaluate
19	List different Perspectives of cloud Providers, Vendors, and Users	2	BTL -1	Remember
20	Give the diagram for Google cloud platform and its major building blocks.	2	BTL -2	Understand
	PART-B			
1	Discuss in detail about the working process of Google App Engine.	13	BTL -2	Understand
2	Describe the following in detail i. Google Cloud Infrastructure	7	BTL -1	Remember

	ii. GAE Architecture	6		
3	i. Write the functional Modules of GAE ii. Discuss in detail about GAE Applications	7 6	BTL -2	Understand
4	Illustrate any five web services of Amazon in detail	13	BTL -3	Apply
5	i. List the four levels of cloud federation. ii. Explain in detail about federation levels.	4 9	BTL -4	Analyze
6	Explain Cloud federation, benefits and implementation with neat diagram.	13	BTL -5	Evaluate
7	Compare and contrast Google App Engine and Amazon AWS	13	BTL -4	Analyze
8	Describe in detail about it Map Reduce technique.	13	BTL -1	Remember
9	Explain the open source software environment –Hadoop in detail with appropriate diagram	13	BTL -4	Analyze
10	Describe in detail about the Hadoop Code.	13	BTL -1	Remember
11	Elaborate HDFS concepts with suitable illustrations.	13	BTL -2	Understand
12	i) Discuss mapreduce with suitable diagrams. ii) Express in detail about the phases of map and reduce.	8 5	BTL -6	Create
13	i. Discuss about OpenStack ii. Describe in detail about on Hadoop framework.	6 7	BTL -1	Remember
14	What are the programming supports of Google App Engine? Illustrate in detail about the Google File system	13	BTL -3	Apply
	PART C			
1	Combine the role of a distributed file system in a job execution environment such as MapReduce in a large-scale cloud system and explain in detail.	15	BTL -6	Create
2	Point out the basic file system operations in hadoop and Tabulate the hadoop file system in detail.	15	BTL -4	Analyze
3	Explain in detail about how to set up a private cloud for an academic university using any one of the cloud environments	15	BTL-5	Evaluate
4	Integrate Map and Reduce functions, and explain how Input Splitting can be perfomed in Hadoop Framework.	15	BTL-6	Create