



ST. ANNE'S COLLEGE OF ENGINEERING AND TECHNOLOGY

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ANGUCHETTYPALAYAM, PANRUTI 607 106

QUESTION BANK

SUBJECT : CS8791-Cloud Computing

SEM / YEAR: VII Sem/ IV Year

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	Define Cloud Computing.	BTL1	Remembering
2	Define Parallel Computing and Centralized computing.	BTL1	Remembering
3	List out the cluster design issues.	BTL1	Remembering
4	Describe the applications of high performance and high throughput systems.	BTL1	Remembering
5	Tabulate the difference between the high performance computing and high throughput computing	BTL1	Remembering
6	Name the essential characteristics of cloud computing.	BTL1	Remembering
7	Give the advantages of cloud computing.	BTL2	Understanding
8	Highlight the importance of the term “cloud computing.”	BTL2	Understanding
9	Identify any two advantages of distributed computing.	BTL2	Understanding
10	Bring out the differences between private cloud and public cloud.	BTL2	Understanding
11	Illustrate the evolutionary trend towards distributed and cloud computing.	BTL3	Applying
12	What are the characteristics of cloud architecture that separates it from traditional one?	BTL3	Applying
13	Interpret the cloud resource pooling.	BTL3	Applying
14	Outline elasticity in cloud.	BTL4	Analyzing
15	Mention what is the difference between elasticity and scalability in cloud computing?	BTL4	Analyzing
16	List few drawbacks of grid computing.	BTL4	Analyzing
17	How is On Demand provisioning of resources applied in cloud computing?	BTL5	Evaluating
18	Assess properties of Cloud Computing.	BTL5	Evaluating
19	Formulate the technologies on which cloud computing relies.	BTL6	Creating
20	Investigate how can a company benefit from cloud computing.	BTL6	Creating
PART – B			
1	i) Identify and explain in detail about evolutionary trend of computer technology. (6) ii) Explain the three paradigms in detail.(7)	BTL1	Remembering
2	Define and examine in detail about the multi core CPUs and multithreading technologies. (13)	BTL1	Remembering



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3	i) Demonstrate in detail about trends towards distributed systems.(7) ii) Illustrate in detail about parallel and distributed programming models. (6)	BTL1	Remembering
4	i) Describe the infrastructure requirements for Cloud computing.(6) ii) What are the issues in cluster design? How can they be resolved.(7)	BTL1	Remembering
5	i) Summarize in detail about the degrees of parallelism. (6) ii) Discuss the application of high performance and high throughput system. (7)	BTL2	Understanding
6	i) Describe in detail the Peer to Peer network families. (6) ii) Express in detail about cloud computing architecture over the Internet? (7)	BTL2	Understanding
7	i) Illustrate the cloud architecture in detail (6) ii) Describe the architecture of a cluster with suitable illustrations.(7)	BTL2	Understanding
8	Explain evolution of cloud computing. (13)	BTL3	Applying
9	Explain in detail underlying principles of Parallel and Distributed Computing .(13)	BTL3	Applying
10	Explain the trends towards Cloud Computing(13)	BTL3	Applying
11	i)Outline the similarities and differences between distributed computing, grid computing and cloud computing.(7) ii)Outline the architecture of cluster cooperative computers with a diagram(6)	BTL4	Analyzing
12	Give the importance of cloud computing and elaborate the different types of services offered by it.(13)	BTL4	Analyzing
13	Explain in detail about Elasticity in Cloud and On-demand Provisioning. (13)	BTL5	Evaluating
14	Generalize the ideas of software environments for distributed systems and clouds.(13)	BTL6	Creating

PART – C

1	Discuss about various dimensions of scalability and performance laws in distributed system.(15)	BTL5	Evaluating
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)	BTL5	Evaluating
3	Create and justify Cloud architecture application design with neat sketch. (15)	BTL6	Creating
4	Briefly explain each of the cloud computing services. Identify two cloud providers by company name in each service category.(15)	BTL6	Creating

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

Q. No.	Questions	BT Level	Competence
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1	Define SOA.	BTL1	Remembering
2	What are the fundamental components of SOAP specification?	BTL1	Remembering
3	List the essential principles of SOA architecture.	BTL1	Remembering



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4	Define REST and its working.	BTL1	Remembering
5	State the most relevant technologies supporting service computing.	BTL1	Remembering
6	What do you mean by systems of systems? Give examples.	BTL1	Remembering
7	Identify the role of Web services in cloud technologies.	BTL2	Understanding
8	Discuss the purpose of Publish-Subscribe Model.	BTL2	Understanding
9	Write the name of Web services tools.	BTL2	Understanding
10	Distinguish between physical and virtual clusters.	BTL2	Understanding
11	What are the benefits of virtualization in the context of cloud computing?	BTL3	Applying
12	Demonstrate the need of virtualization need of multi-core processor.	BTL3	Applying
13	How the data storage is classified in virtual environment?	BTL3	Applying
14	Infer about Virtual machine monitor.	BTL4	Analyzing
15	Compare binary translation with full virtualization.	BTL4	Analyzing
16	“Although Virtualization is widely Accepted today, it does have its limits”. Comment on the statement.	BTL4	Analyzing
17	How does the virtualization Support the Linux platform?	BTL5	Evaluating
18	Discuss on the support of middleware for virtualization.	BTL5	Evaluating
19	Summarize the differences between Hardware Abstraction level and OS Level.	BTL6	Creating
20	Discuss classification or taxonomy of virtualization at different levels.	BTL6	Creating
PART – B			
1	Describe in detail about SOA and Web services.(13)	BTL1	Remembering
2	Explain what you understand the technologies that make up the core of today's web services. (13)	BTL1	Remembering
3	Describe in detail about the REST a software architecture style for distributed systems.(13)	BTL1	Remembering
4	What is virtualization? Describe para and full virtualization architectures. Compare and contrast them.(13)	BTL1	Remembering
5	Summarize the virtualization for data center automation.(13)	BTL2	Understanding
6	i) Summarize the support of middleware and library for virtualization(6) ii) Explain the layered architecture of SOA for web services.(7)	BTL2	Understanding
7	i) Explain about REST. (7) ii)Discuss fast deployment, effective scheduling and high performance virtual storage in detail. (6)	BTL2	Understanding
8	i) Illustrate in detail about the compiler support for para virtualization architecture. (6) ii) Examine in detail about hardware support for virtualization and CPU virtualization. (7)	BTL3	Applying
9	Explain in detail about virtualization tools and mechanism. (13)	BTL3	Applying
10	Illustrate the migration steps and performance effects involved in live VM. (13)	BTL3	Applying
11	Analyze in detail about the implementation level of virtualization.(13)	BTL4	Analyzing
12	i) List the advantages and disadvantages of OS extension in virtualization. (6) ii) Identify the support of virtualization Linux platform. (7)	BTL4	Analyzing



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13	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.(13)	BTL5	Evaluating
14	i) Point out the importance of memory virtualization.(6)	BTL6	Creating



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	ii) Explain virtualization of I/O devices with an example. (7)		
PART – C			
1	Analyze how the virtualization technology supports the cloud computing.(15)	BTL 4	Analyzing
2	Explain the technologies available for the design of application by following Service Oriented Architecture(SOA).(15)	BTL5	Evaluating
3	Explain the virtualization structure for i)Hypervisor and Xen Architecture(5) ii)Binary Translation with Full Virtualization.(5) iii) Para-Virtualization with Compiler Support.(5)	BTL5	Evaluating
4	Give the importance of Virtualization Support and Disaster Recovery.(15)	BTL6	Creating

UNIT III CLOUD ARCHITECTURE, SERVICES AND STORAGE

Layered Cloud Architecture Design – NIST Cloud Computing Reference Architecture – Public, Private and Hybrid Clouds – IaaS – PaaS – SaaS – Architectural Design Challenges – Cloud Storage – Storage-as-a-Service – Advantages of Cloud Storage – Cloud Storage Providers – S3.

PART – A

Q. No.	Questions	BT Level	Competence
1	Define public clouds.	BTL1	Remembering
2	Write a short note on community cloud.	BTL1	Remembering
3	Define IaaS.	BTL1	Remembering
4	State the differences between PaaS and SaaS.	BTL1	Remembering
5	Why do we need a hybrid cloud?	BTL1	Remembering
6	State the role of cloud auditor in cloud.	BTL1	Remembering
7	What are the different layers available in cloud architecture design?	BTL2	Understanding
8	What are the various components of NIST Cloud computing reference architecture?	BTL2	Understanding
9	Differentiate cloud consumer and provider.	BTL2	Understanding
10	Identify the major players involved in cloud computing.	BTL2	Understanding
11	Demonstrate the need of private cloud.	BTL3	Applying
12	Show the interaction between the Actors in the cloud computing.	BTL3	Applying
13	Demonstrate the difference between software as a service and software plus service.	BTL3	Applying
14	Why do we need cloud storage?	BTL4	Analyzing
15	Analyze the storage as a service.	BTL4	Analyzing
16	Point out major activities of cloud provider.	BTL4	Analyzing
17	Compare service aggregation and service arbitrage.	BTL5	Evaluating
18	Summarize the benefits and drawbacks of using “Platform as a Service.	BTL5	Evaluating
19	Write the services in EaaS	BTL6	Creating
20	Identify the use of S3.	BTL6	Creating
PART – B			



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1	List the cloud deployment models and give a detailed note about them.(13)	BTL1	Remembering
2	Discuss in detail about the categories of cloud computing.(13)	BTL1	Remembering
3	Describe service and deployment models of a cloud computing	BTL1	Remembering



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	environment with illustrations.(13)		
4	Discuss about the Layered Cloud Architecture Design.(13)	BTL1	Remembering
5	Summarize about the NIST Cloud Computing Reference Architecture.(13)	BTL2	Understanding
6	Discuss the Infrastructure-as-a-Service, Platform as a service and Software as a service. (13)	BTL2	Understanding
7	Discuss the features of software as a Service and explain in detail about SaaS with example.(13)	BTL2	Understanding
8	Explain the software distribution model in which applications are hosted by a vendor or service provider and made available to customers over a network, typically the Internet.(13)	BTL3	Applying
9	i. Illustrate the features of Platform as a Service (5) ii. Demonstrate in detail about PaaS with example.(8)	BTL3	Applying
10	i. Give the diagram Cloud Computing Reference Architecture.(3) ii. Illustrate in detail about The Conceptual Reference Model of cloud (10)	BTL3	Applying
11	Analyze the challenges in architectural design of cloud.(13)	BTL4	Analyzing
12	Compare: Public. Private and Hybrid clouds.(13)	BTL4	Analyzing
13	Evaluate in detail about Cloud Storage and Storage-as-a-Service – with advantages of Cloud Storage.(13)	BTL5	Evaluating
14	Explain with neat diagram about the Cloud Storage Providers and Amazon Simple Storage Service S3.(13)	BTL6	Creating
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 more efficiently handled in the Linux environment. All the pointers say that 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)	BTL3	Applying
2	Evaluate and contrast the merits and demerit of Cloud deployment models: public, private, hybrid, community.(15)	BTL5	Evaluating
3	Evaluate about the architectural design of compute and storage clouds. (15)	BTL5	Evaluating
4	Under what circumstances should you prefer to use PaaS over IaaS? Formulate it with an example.(15)	BTL6	Creating

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

Q. No.	Questions	BT Level	Competence
1	What are the six layers of cloud services?	BTL1	Remembering



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2	List the five application areas in SaaS applications.	BTL1	Remembering
3	State the different Resource Provisioning Methods.	BTL1	Remembering
4	List the cloud Differences in the perspectives of providers, vendors, and users.	BTL1	Remembering



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5	What are the security challenges in cloud computing?	BTL1	Remembering
6	Define security governance.	BTL1	Remembering
7	Differentiate over provisioning and under positioning of resources with an example.	BTL2	Understanding
8	Discuss the demand resource provisioning with example. (VMs)	BTL2	Understanding
9	Give the diagram for evolution of cloud services.	BTL2	Understanding
10	Identify the ways with examples in which the many cloud computing companies have developed large-scale data storage systems to keep huge amount of data collected every day.	BTL2	Understanding
11	Demonstrate any two storage services of cloud system.	BTL3	Applying
12	Illustrate password assurance testing.	BTL3	Applying
13	Which three basic cloud security enforcements are expected?	BTL3	Applying
14	Analyze the different security threats in implementing SAAS.	BTL4	Analyzing
15	Examine whether the virtualization enhances cloud security.	BTL4	Analyzing
16	Differentiate the Physical and Cyber Security Protection at Cloud/Data Centers.	BTL4	Analyzing
17	Identify the phases of SecSDLC.	BTL5	Evaluating
18	“Virtual machine is secured”. Is it true? Justify your answer.	BTL5	Evaluating
19	Generalize about the IAM.	BTL6	Creating
20	Name the different Security Standards.	BTL6	Creating
PART – B			
1	Explain in detail about the Inter-cloud resource management. (13)	BTL1	Remembering
2	Describe the Resource Provisioning and Platform Deployment. (13)	BTL1	Remembering
3	Explain in detail about virtual machine creation and management. (13)	BTL1	Remembering
4	Describe the Interactions among VM managers for cloud creation and management; the manager provides a public API for users to submit and control the VMs. (13)	BTL1	Remembering
5	Summarize the global exchange of cloud resources. (15)	BTL2	Understanding
6	Discuss in detail about Software-as-a-Service Security.(15)	BTL2	Understanding
7	i) Express in detail about the need of IAM.(6) ii) Give the challenges in IAM.(7)	BTL2	Understanding
8	Examine Extended Cloud Computing Services with neat block diagram. (13)	BTL3	Applying
9	Show what is Cloud Security Defense Strategies with neat diagram.(13)	BTL3	Applying
10	Illustrate the following i.Demand-Driven Resource Provisioning(5) ii.Event-Driven Resource Provisioning(5) iii.Popularity-Driven Resource Provisioning(3)	BTL3	Applying
11	i.Explain in detail about security monitoring and incident (8) ii.Define Application security and its use.(5)	BTL4	Analyzing
12	What is the purpose of IAM? Describe its functional architecture with an illustration.(13)	BTL4	Analyzing
13	Explain the Secure Software Development Life Cycle with neat diagram.(13)	BTL5	Evaluating



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14	i) Compose in detail about the aspects of data security.(6) ii) Generalize on data security mitigation.(7)	BTL6	Creating
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	BTL6	Creating



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	a typical banking scenario.(15)		
2	Evaluate the security governance and virtual machine security. (15)	BTL5	Evaluating
3	For an SaaS application, who will be responsible to provide security for the infrastructure? Will it be cloud service provider or the cloud service consumer? Who will be responsible to ensure compliance with a privacy standard? Formulate your views about it .	BTL5	Evaluating
4	Describe the benefits of different cloud Security standards. (SAML OAuth, OpenID, SSL/TLS).(15)	BTL6	Creating

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

Q. No.	Questions	BT Level	Competence
1	Define the MapReduce function.	BTL1	Remembering
2	List the usage of virtual box.	BTL1	Remembering
3	Give some of the Applications of GAE.	BTL1	Remembering
4	List the functional models of GAE.	BTL1	Remembering
5	Name the different modules in Hadoop framework.	BTL1	Remembering
6	Give the formal notation of MapReduce dataflow.	BTL1	Remembering
7	What are the benefits of cloud federation?	BTL2	Understanding
8	What is use of the Google SDC Secure Data Connection?	BTL2	Understanding
9	Discuss about open stack compute and open stack storage.	BTL2	Understanding
10	Analyze the open stack components.	BTL2	Understanding
11	Demonstrate how does the name node choose which data nodes to store replicas on?	BTL3	Applying
12	Show the architecture of MapReduce in Hadoop.	BTL3	Applying
13	Illustrate XMPP and its advantages.	BTL3	Applying
14	Differentiate name node with data node in Hadoop file system.	BTL4	Analyzing
15	Which is better VMWare or Virtual Box?	BTL4	Analyzing
16	Analyze the future of federations.	BTL4	Analyzing
17	"HDFS is fault tolerant. Is it true? Justify your answer	BTL5	Evaluating
18	Evaluate about the Federated applications	BTL5	Evaluating
19	Draw the data mutation sequence in GFS.	BTL6	Creating
20	Give the diagram for Google cloud platform and its major building blocks.	BTL6	Creating

PART – B

1	Describe how the Open Solaris running on top of windows XP via virtual box with neat diagram.(13)	BTL1	Remembering
2	i) Examine the basic file system operation in Hadoop.(7) ii) Tabulate the Hadoop file system in detail.(6)	BTL1	Remembering
3	State and Explain the basic of Google App Engine infrastructure programming model.(13)	BTL1	Remembering



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4	Examine the architecture of Google File System (GFS).(13)	BTL1	Remembering
5	Discuss MapReduce with suitable diagrams.(13)	BTL2	Understanding
6	Summarize the Comparison of MapReduce++ Subcategories along	BTL2	Understanding



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	with the Loosely Synchronous Category Used in MPI.(13)		
7	Discuss in detail about the four levels of federation in cloud.(13)	BTL2	Understanding
8	i) Classify the various ways in input splitting of map reduce.(6) ii) Show how will you prevent input splitting in map reduce.(7)	BTL3	Applying
9	How cloud federation addresses the limitations in cloud computing. Explain in detail.(13)	BTL3	Applying
10	Illustrate, how encrypted federation differs from trusted federation. (13)	BTL3	Applying
11	Illustrate dataflow in HDFS during file read/write operation with suitable diagrams.(13)	BTL4	Analyzing
12	Give a detailed note on Hadoop framework. (13)	BTL4	Analyzing
13	Evaluate architecture of OpenStack (13)	BTL5	Evaluating
14	Construct the design of OpenStack Nova system architecture and describe detail about it.(13)	BTL6	Creating
PART – C			
1	Generalize the big table data model used in Mass Media using a simplified data model compared to traditional database systems	BTL6	Creating
2	What are the programming supports of Google App Engine? Illustrate in detail about the Google File system	BTL5	Evaluating
3	Evaluate the HDFS concepts with suitable illustrations .Develop a word count application with Hadoop Map Reduce programming model.(15)	BTL5	Evaluating
4	Construct OpenStack open source cloud computing infrastructure and discuss in detail about it.(15)	BTL6	Creating