

III/IV B.Tech. DEGREE EXAMINATION
First Semester
Computer Science and Engineering
CLOUD COMPUTING
(Effective from the admitted batch of 2022–2023)

Time: Three hours

Maximum: 70 marks

Instructions:

- First Question is compulsory.
 - Answer any **FOUR** from the remaining questions.
 - All questions carry equal marks.
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1.

- (a) Define Distributed Computing.
- (b) What is the difference between public and private clouds?
- (c) List two key characteristics of virtualization.
- (d) What are the advantages of OS Extension for Virtualization?
- (e) What is Publish Subscribe Model?
- (f) Describe storage model.
- (g) What is Read/Write coherence?

2.

- (a) Describe the peer-to-peer computing paradigm and its advantages. (7)
- (b) Compare distributed computing and cluster computing with examples. (7)

3.

- (a) Write a detailed note on the transition from traditional computing models to modern paradigms like cloud computing. (7)
- (b) Differentiate between Public, Private, and Hybrid clouds. Provide suitable use cases for each. (7)

4.

- (a) Explain SaaS cloud service model with examples. (7)
- (b) Distinguish between PaaS and IaaS. (7)

5.

- (a) How does virtualization support at the OS level differ from middleware support for virtualization? (7)
- (b) Discuss the process of virtualization of CPU, memory, and I/O devices. (7)

6.

- (a) How does Google App Engine (GAE) support application deployment and scaling? Provide a detailed overview. (7)
- (b) Discuss the architecture of Amazon Web Services (AWS) and its key components. (7)

7.

- (a) What are the three important characteristics of the Unix File System that enabled the extension from local to remote file management? Explain briefly. (7)
- (b) Write short notes on Network File Systems. (7)

8.

- (a) What challenges are involved in the resource management of virtual machines? (7)
- (b) Explain briefly about Distributed file systems. (7)

III/IV B.Tech. DEGREE EXAMINATION
Computer Science and Engineering
First Semester
Professional Elective
CLOUD COMPUTING
(Effective from the admitted batch of 2021–2022)

Time: 3 Hours

Max. Marks: 70

Instructions:

- Question No. 1 is compulsory.
- Answer any **FOUR** from the remaining questions.
- All questions carry equal marks.
- Answer all parts of any question at one place.

1. Answer the following in brief:

- (a) Define Software as a Service (SaaS).
- (b) Define virtual LAN (VLAN) in network virtualization.
- (c) Define Platform as a Service (PaaS).
- (d) Discuss the key benefits of IaaS, including scalability and flexibility.
- (e) Explain the client-server distributed architecture.
- (f) What are the key principles of cloud governance?
- (g) What are the unique security challenges?

2.

- (a) What is the difference between Infrastructure as a Service (IaaS) and Platform as a Service (PaaS)?
- (b) What is Database as a Service (DBaaS)? How does it benefit business in terms of scalability and maintenance?

3.

What is server virtualization and how does it optimize server resource utilization? Provide two examples of popular server virtualization platforms, the underlying operating system, and an example of an application virtualization tool.

4.

- (a) Discuss the role of APIs (Application Programming Interfaces) in enabling collaboration between SaaS and PaaS offerings.
- (b) What security measures are typically implemented in SaaS and PaaS environments to protect user data and applications?

5.

Describe different types of servers available in IaaS, such as dedicated servers, virtual private servers (VPS), and bare-metal servers. What are their respective use cases and advantages?

6.

- (a) Discuss server-side scripting languages like PHP, Python, and Ruby, and how they are used in cloud application development.
- (b) Explain the role of client-side programming in web applications, focusing on technologies like HTML, CSS, and JavaScript.

7.

- (a) What metrics and key performance indicators (KPIs) are crucial for evaluating the success of cloud adoption within an organization?
- (b) What criteria should organizations consider when selecting a cloud service provider, including factors like reliability, security, support, and pricing?

8.

- (a) What is the fundamental concept behind MapReduce, and how does it enable distributed data processing?
- (b) What are the major security challenges associated with processing and storing big data cloud environments?

III/IV B.Tech. DEGREE EXAMINATION
Computer Science and Engineering
First Semester
Professional Elective – (2)
CLOUD COMPUTING

(Effective from the admitted batch of 2020–2021)

Time: 3 Hours

Max. Marks: 70

Instructions:

- Question No. 1 is compulsory.
- Answer any **FOUR** from the remaining questions.
- All questions carry equal marks.
- Answer all parts of any question at one place.

1. Answer the following in brief:

- (a) Explain briefly about database services in cloud.
- (b) List the pros and cons of virtualization.
- (c) List some benefits of PaaS solutions.
- (d) What is load balancing?
- (e) What is Server-Side programming?
- (f) What is cloud governance?
- (g) What is Hadoop?

2.

- (a) Elaborate database services offered in cloud environment.
- (b) Discuss about the cloud Infrastructure services with an example.

3.

- (a) Describe about desktop virtualization.
- (b) List the reasons why companies should virtualize. Elaborate the reasons.

4.

- (a) Explore the open SaaS solutions in detail.
- (b) Discuss about some real-world PaaS solutions.

5.

- (a) Illustrate server types within IaaS.
- (b) Describe cloud-based Network Attached Storage (NAS) and their service providers in detail.

6.

- (a) Describe the Client–Server distributed architecture for cloud.
- (b) Explain about creating and deploying cloud-based applications using Google App Engine.

7.

- (a) Discuss about governing and evaluating the cloud business and its impact.
- (b) Discuss about migrating to the cloud in detail.

8. Write short notes on the following:

- (a) Big Data impact on cloud.
- (b) Managing the cloud.
- (c) Securing the cloud.

III/IV B.Tech. DEGREE EXAMINATION
Second Semester
Computer Science and Engineering
Elective II (A) — CLOUD COMPUTING
(Common with Information Technology)
(Effective from the admitted batch of 2015–2016)

Time: 3 Hours

Maximum: 70 Marks

Instructions:

- First Question is compulsory.
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-

1.

- (a) Give a note on data storage in cloud.
- (b) List out the different types of virtualization.
- (c) Mention the applications of SaaS.
- (d) What are the advantages of load balancing.
- (e) What is cloud application development?
- (f) What are the benefits of a cloud governance framework?
- (g) What is big data in the cloud?

2.

- (a) What is cloud computing? List out various advantages and disadvantages of cloud computing.
- (b) Discuss about various services provided by Cloud Computing.

3.

- (a) What is Application Virtualization? Give examples of Application Virtualization use.
- (b) Discuss about server virtualization.

4.

- (a) Discuss about SaaS.
- (b) Explain the benefits of PaaS.

5.

- (a) What are the benefits of IaaS?
- (b) Discuss about cloud-based data storage and backup services.

6.

- (a) Mention the challenges of Cloud-based application development.
- (b) Discuss about web application framework.

7.

- (a) What is cloud governance and why is it important?
- (b) What is governing and evaluating the cloud business?

8.

- (a) Discuss about MapReduce.
- (b) List out the pros and cons of big data in the cloud.

III/IV B.Tech. DEGREE EXAMINATION
Computer Science and Engineering
Professional Elective (2) — CLOUD COMPUTING
(Effective from the admitted batch of 2020–2021)

Time: 3 Hours

Maximum: 70 Marks

Instructions:

- Question No. 1 is compulsory.
- Answer any **FOUR** from the remaining questions.
- All questions carry equal marks.
- Answer all parts of any question at one place.

1.

- (a) Explain about the benefits of the paradigm shift from local desktop to network-centric data processing.
- (b) Define hypervisor.
- (c) Define and explain briefly about mashups.
- (d) Define NAS.
- (e) What are Cloud Apps?
- (f) Explain briefly about Cloud evaluation.
- (g) What is MapReduce?

2.

- (a) Explore the Cloud computing delivery and deployment models and defining attributes.
- (b) Describe three Cloud-based solutions for individuals and business.

3.

- (a) Explain about the memory virtualization in detail.
- (b) Elaborate on tools and products available for virtualization.

4.

- (a) Discuss about the multitenant nature of Cloud solutions in detail.
- (b) Describe the Service Oriented Architecture in detail.

5.

- (a) Describe load balancing and their cloud solution providers.
- (b) Discuss about the Cloud-based block storage and database services.

6.

- (a) Discuss about the Client-Side programming concepts used in cloud.
- (b) Discuss about Web Application framework in detail.

7.

- (a) Describe the Disaster recovery and business continuity in the cloud environment.
- (b) Explain about the issues in securing the cloud.

8. Write Short Notes on the following:

- (a) Traditional Apps vs Cloud-based Apps.
- (b) Hadoop Architecture.
- (c) Migrating to Cloud.

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Time: Three hours

Maximum: 70 marks

Instructions:

- First Question is compulsory.
 - Answer any **FOUR** from the remaining questions.
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1.

- (a) Give a note on data storage in cloud.
- (b) List out the different types of virtualization.
- (c) Mention the applications of SaaS.
- (d) What are the advantages of load balancing.
- (e) What is cloud application development?
- (f) What are the benefits of a cloud governance framework?
- (g) What is big data in the cloud?

2.

- (a) What is cloud computing? List out various advantages and disadvantages of cloud computing.
- (b) Discuss about various services provided by the Cloud Computing.

3.

- (a) What is Application Virtualization? Give examples of Application Virtualization use?
- (b) Discuss about the server virtualization.

4.

- (a) Discuss about SaaS.
- (b) Explain the benefits of PaaS.

5.

- (a) What are the benefits of IaaS?
- (b) Discuss about cloud-based data storage and backup services.

6.

- (a) Mention the challenges of Cloud-based application development.
- (b) Discuss about web application framework.

7.

- (a) What is cloud governance and why is it important?
- (b) What is governing and evaluating the cloud business?

8.

- (a) Discuss about MapReduce.
- (b) List out the pros and cons of big data in the cloud.

III/IV B.Tech. DEGREE EXAMINATION
Second Semester
Computer Science and Engineering
Elective – II (A) CLOUD COMPUTING
(Effective from the admitted batch of 2015–2016)
For the academic year 2020–2021 batch only

Time: Three Hours

Maximum: 70 Marks

Instructions:

- Question No. 1 is compulsory.
- Answer any **FOUR** questions from the remaining.
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1.

- (a) Define and discuss cloud computing.
- (b) Explain about how cloud computing has changed companies' budget for IT.
- (c) Define scalability and discuss how the cloud impacts it.
- (d) Define and describe mashups.
- (e) Define and describe SAN.
- (f) Define and describe collocation.

2.

- (a) Define SOA.
- (b) What is DaaS? Describe its benefits.
- (c) Compare and contrast SaaS, PaaS, and IaaS, and provide an example of each.

3.

- (a) Compare and contrast public, private, community, and hybrid clouds.
- (b) Define virtualization and discuss how the cloud impacts it.

4.

- (a) Discuss about the data storage in the cloud.
- (b) List reasons why companies should virtualize.

5.

- (a) Benchmark the concept of the desktop on demand and include the benefits of such a system.
- (b) Describe the role of OpenStack.

6.

- (a) Define and describe load balancing and their cloud solution providers.
- (b) Assuming you must select a cloud storage solution for your company, what factors would you consider in selecting a vendor?

7.

- (a) Discuss about the server-side programming.
- (b) With an example, explain the fundamental web application framework.

8. Write short notes on the following:

- (a) Memory Virtualization
- (b) Cloud-based backup service
- (c) Client-side programming

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1.

- (a) What is utility computing?
- (b) What is hosted virtualization?
- (c) What is IaaS? Explain how it is managed by cloud providers.
- (d) Differentiate between NAS and SAN.
- (e) List some popular applications of cloud apps.
- (f) Explain the typical security requirements of a cloud service.
- (g) Define big data.

2.

- (a) Define and describe SaaS advantages and disadvantages.
- (b) Describe cloud-based database solutions.

3.

- (a) Explain cloud-based storage solutions.
- (b) Explain cloud-based load balancing in cloud computing.

4.

- (a) Define and describe SOA.
- (b) Explain SaaS advantages and disadvantages.

5.

- (a) List three examples of real cloud applications.
- (b) Explain how products are created and deployed using Google App Engine.

6.

- (a) Explain cloud architecture.
- (b) Discuss about cloud applications.

7.

- (a) Define Common Security threats in cloud-based resources.
- (b) Define Business Strategy and provide examples of strategic goals.

8.

- (a) Explain the MapReduce architecture.
- (b) Discuss about Hadoop distributed file system.

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1.

- (a) Differentiate between public cloud and private cloud.
- (b) How does virtualization work in cloud computing?
- (c) What are the disadvantages of PaaS?
- (d) Explain load balancing in cloud environment.
- (e) What is cloud application development?
- (f) What is meant by cloud migration?
- (g) Explain Hadoop.

2.

- (a) Discuss about IaaS.
- (b) Mention the advantages and limitations of cloud computing.

3.

- (a) Explain different types of virtualization.
- (b) Describe about the tools and products available for virtualization.

4.

- (a) Explain SOA with a neat block diagram.
- (b) Differentiate between SaaS and PaaS.

5.

- (a) Explain cloud-based block storage and database services.
- (b) Describe about IaaS and its server types.

6.

- (a) Differentiate between Traditional apps vs Cloud apps.
- (b) Discuss the client-server distributed architecture for designing cloud-based web solutions.

7.

- (a) Explain the importance of cloud governance.
- (b) Discuss about how disaster recovery is performed in the cloud.

8.

- (a) Explain the impact of big data in cloud services.
- (b) Discuss about Map Reducing.

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Instructions:

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1.

- (a) Define and discuss cloud computing.
- (b) List three advantages and three disadvantages of cloud computing.
- (c) Describe potential disadvantages of PaaS.
- (d) Define and describe NAS.
- (e) Define and describe collocation.

2.(a) Explain about the three components that make up a cloud computing solution.

(b) Describe three cloud-based solutions for individuals and three cloud-based solutions for businesses.

3.(a) Discuss about different types of virtualizations.

(b) Defend the following statement: *Virtualization is not a new concept within computer science.*

4.(a) List the advantages and disadvantages of SaaS solutions.

(b) List SaaS providers for each of the following industries:

- 🚦 Sales and customer relationship management
- 🚦 Accounting
- 🚦 Income tax filing
- 🚦 Web-based meetings
- 🚦 Human resources

5.(a) Define and describe Service Oriented Architecture.

(b) Describe how a cloud-based database management system differs from an on-site database.

6.(a) Define and describe system redundancy. Discuss how you might use IaaS to implement a redundancy plan.

(b) Describe how cloud-based data storage works.

7.(a) Explain about the Client–Server architecture for Cloud with a neat sketch.

(b) Explain about the traditional apps and cloud-based apps.

8. Write short notes on the following:

- (a) Storage Virtualization
- (b) Coding of Cloud-based applications
- (c) IaaS

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1.

- (a) What are the storage applications of cloud computing?
- (b) List the different types of virtualizations.
- (c) Write the applications of SOA.
- (d) Give a brief note on advantages of IaaS solutions.
- (e) List the various platforms to create cloud-based applications.
- (f) What are the basic things to be considered for business economics in evaluating cloud business impact?
- (g) Discuss the different cloud platforms offered by various organizations.

2.

- (a) How do virtualization technologies, VM live migration and provisioning help in cloud computing?
- (b) Distinguish between SaaS and PaaS.
- (c) What are the various cloud SaaS solutions?

3.

- (a) Give a brief note on server virtualization.
- (b) Discuss about the concept of desktop on demand and include the benefits of such a system.

4.

- (a) How do cloud-based backup services and database services get virtualized? Discuss.
- (b) Explain SaaS benefits produced for a company.

5.

- (a) How IaaS utilizes cloud-based NAS devices?
- (b) Distinguish between server-side and client-side programming.

6.

- (a) Discuss about cloud-based backup services and database services.
- (b) Explain the client–server distributed architecture for designing cloud-based web solutions.

7.

- (a) Write the different possible attacks in threats to securing a cloud and explain what disaster recovery plan template is.
- (b) With a neat sketch, explain web application framework.

8.

- (a) Explain MapReduce. How is it related to Big Data?
- (b) How Big Data can influence the cloud services such as Hadoop? Explain.