B.TECH/AEIE/ECE/EE/7TH SEM/INFO 4121/2021

FUNDAMENTALS OF CLOUD COMPUTING
(INFO 4121)

Time Allotted : 3 hrs **Full Marks : 70**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

Candidates are required to give answer in their own words as far as practicable.

Group – A
(Multiple Choice Type Questions)

1. Choose the correct alternative for the following: **10 × 1 = 10**

(i) Security Access control mechanism that controls access permission through policies that determines different set of attributes to check access rights of user.
(a) Mandatory access control (b) Discretionary access control
(c) Attribute access control (d) Role access control

(ii) An identity management system where user does not require repeated authentication.
(a) SSO (b) DSO (c) LSO (d) None of the above

(iii) _____ attack, where resource cannot be used by authorised users
(a) Denial of Service (b) Replay
(c) Masquerade (d) None of the above

(iv) _____ Grid provides fault tolerance and high performance communication services.
(a) Data (b) Collaboration
(c) Network (d) Computational

(v) Application frameworks provide a means for creating _____ hosted applications using IDE.
(a) PaaS (b) SaaS (c) CaaS (d) All of the mentioned

(vi) Point out the wrong statement.
(a) Full virtualization requires that the host operating system provide a virtual machine interface for the guest operating system and that the guest access hardware through that host VM
(b) Guest operating systems in full virtualization systems are generally faster than other virtualization schemes
(c) A process virtual machine instantiates when a command begins a process
(d) All of the mentioned

(vii) Point out the correct statement.
(a) Amazon Elastic Cloud is a system for creating virtual disks(volume)
(b) SimpleDB interoperates with both Amazon EC2 and Amazon S3
(c) EC3 is an Analytics as a Service provider
(d) None of the mentioned

(viii) _____ is a cloud computing service model in which hardware is virtualized in the cloud.
(a) IaaS (b) CaaS (c) PaaS (d) None of the mentioned

(ix) Which category of cloud computing model does Microsoft Azure fall under?
(a) Infrastructure as a Service (b) Platform as a Service
(c) Software as a Service (d) Compliance as a Service

(x) Which one of these is not a cloud computing pricing model?
(a) Free (b) Pay Per Use (c) Subscription (d) Ladder.

Group - B

2. (a) Differentiate between Cluster computing and Cloud Computing. [(CO1) (Analyze/IOCQ)]

(b) Justify the statement "Cloud computing is economical".[(CO1) (Evaluate/HOCQ)]

(c) Explain Grid computing with appropriate diagram. [(CO1) (Understand/LOCQ)]

5 + 3 + 4 = 12

3. (a) Discuss any four applications of Cloud computing. [(CO1) (Understand/LOCQ)]

(b) Explain any five characteristics of Cloud computing. [(CO1) (Understand/LOCQ)]

(c) Justify the statement "Cloud computing is secure".[(CO1) (Evaluate/HOCQ)]

4 + 5 + 3 = 12

Group - C

4. (a) Compare between Public Cloud, Hybrid Cloud and Community Cloud. [(CO2) (Analyze/IOCQ)]

(b) Explain the concept to virtualized entire classes of network. [(CO4) (Evaluate/HOCQ)]

(c) Explain different access interface of Amazon Web Service. [(CO5) (Understand/LOCQ)]

3 + 6 + 3 = 12

5. (a) Compare between Full Virtualization, Para-Virtualization and OS-level Virtualization. [(CO4) (Analyze/IOCQ)]

(b) Differentiate between Host-Based Storage Virtualization, Network-Based Storage Virtualization and Array-Based Storage Virtualization. [(CO4) (Analyze/IOCQ)]

(c) Explain Open Flow Protocol with an example. [(CO4) (Understand/LOCQ)]

4 + 4 + 4 = 12

Group - D

6. (a) What are the things to keep in mind when deciding on a SaaS solution. [(CO2) (Remember/LOCQ)]

(b) Explain different key features of Google App Engine.[(CO5) (Understand/LOCQ)]

(c) Compare the different access tiers available in Microsoft Azure Storage Service. [(CO5) (Analyze/IOCQ)]

3 + 5 + 4 = 12

7. (a) Why SaaS has a lot of appeal to businesses? [(CO2) (Remember/LOCQ)]

(b) Explain with an example the working process of Web Service. [(CO6) (Evaluate/HOCQ)]

(c) Explain the different features of Web2.0. [(CO6) (Understand/LOCQ)]

3 + 6 + 3 = 12

Group - E

8. (a) Differentiate between Biometric authentication and Multifactor authentication. [(CO3) (Analyse/IOCQ)]

(b) Explain different types of Application level security threats in Cloud computing. [(CO3) (Understand/LOCQ)]

(c) Differentiate between Mandatory access control technique and Discretionary access control techniquewith appropriate diagrams. [(CO3) (Analyse/IOCQ)]

3 + 4 + 5 = 12

9. (a) Explain different components of SLA. [(CO3) (Understand/LOCQ)]

(b) Explain different SLA metrics for IaaS. [(CO2)(CO3) (Understand/LOCQ)]

(c) Explain two categories of Cloud Cost Components. [(CO3) (Understand/LOCQ)]

4 + 4 + 4 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	52.08%	29.16%	18.75%

Course Outcome (CO):

After the completion of the course students will be able to
1. Articulate the main concepts, key technologies, strengths, and limitations of cloud computing
2. Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.
3. Explain the core issues of cloud computing such as security, privacy, and interoperability.
4. Discuss system, network and storage virtualization and outline their role in enabling the cloud computing system model.
5. Explain AWS, Google App Engine, Microsoft Azure
6. Understand different web services techniques to provide SaaS.

*LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question; HOCQ: Higher Order Cognitive Question

Department & Section	Submission Link
AEIE	**https://classroom.google.com/c/NDA0ODk4ODAxNTA2/a/NDYzNjcyOTQwMTEw/details**
ECE	**https://classroom.google.com/c/NDA0ODk4ODAxNTA2/a/NDYzNjcyOTQwMTEw/details**
EE	**https://classroom.google.com/c/NDA0ODk4ODAxNTA2/a/NDYzNjcyOTQwMTEw/details**