NATIONAL INSTITUTE OF TECHNOLGY PATNA
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Mid Semester Examination Jan - June 2024

B. Tech: **CSE VIth semester** Course Name: **Cloud Computing**
Course Code: **CS64121** Max. Marks: 30
Maximum Time: 2 Hours

Instructions:

1. Attempt all the questions.
2. Assume any suitable data, if necessary.
3. Answer all parts of the question at the same place.
4. **Marks will be deducted for unnecessary writing. Answer all the Questions in brief and precise.**

S.No.	Questions	CO	BL	Marks
1.	Discuss the following types of computing environments. Give a comparative analysis of the underlying architecture used in these computing. a. Distributed Computing b. Cluster Computing c. Grid Computing d. Cloud Computing	CO1	L1, L2, L4	2*4
2.	A process in a distributed system runs on one node and accesses data from another node. After some time, for load balancing purposes, this process relocates to a different node. What transparencies should be provided for this process in a distributed system? Explain all such transparencies.	CO1	L2, L3	8
3.	In the process of VM (Virtual Machine) migration to a new host within the same LAN (Local area network), how will the existing communication's messages over the network be re-routed to the new host? Explain in detail.	CO1, CO2	L2, L3	6
4.	Why is Virtualization needed in a Cloud Computing Environment? Can we use x86 architecture to trap and emulate virtualization? Explain with reasoning. Why?	CO2	L2, L4	4
5.	Discuss the architecture of full virtualization and Hardware-Assisted QEMU/ KVM. Highlight the major differences between both.	CO2	L1, L4	4

*** END ***

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Department of Computer Science and Engineering
MID SEMESTER EXAMINATION, Jan-June 2024

Course Code: **CS64120**
Course Name: **Data Mining**

Max. Marks: 30
Maximum Time: 2 hours

Instructions:

1. Attempt all questions.
2. Assume any suitable data, if necessary. *Give diagram where necessary.*
3. Answer all the questions in the order as appeared in the question paper and write all the sub-parts of a question in one place.

S.N.	Questions	Marks	CO	BL
1.	a) In the process of data mining, how do we handle missing values and noisy data?	6	CO1	Remember,
	b) Data for price of items are as follows: 13, 13, 10, 12, 12, 17, 17, 15, 33, 35, 36, 17, 17, 18, 22. Use bin size as 5, smooth this price data by ***bin means*** and ***bin boundaries.***	4	CO1	Apply
2.	a) What do you mean by the OLAP? What are the various OLAP operations in multidimensional data model?	6	CO2	Remember,
	b) Suppose the TAJ sales contain the following dimensions: *city, item, and year.* Draw the Lattice of cuboids for TAJ sales.	4	CO2	Analyze, Apply
3.	Consider the given transactional dataset and answer the following:			
	a) Compute the support for itemsets $\{e\}$, $\{b, d\}$, $\{a, d\}$, and $\{b, d, e\}$ by treating each transaction ID as a market basket.	2	CO3	Apply
	b) Use the results in part (a) to compute the confidence for the association rules $\{b, d\} \rightarrow \{e\}$ and $\{e\} \rightarrow \{b, d\}$. Is confidence a symmetric measure? Justify.	2	CO3	Apply
	c) Apply the Apriori algorithm to extract all frequent itemsets by considering minsup = 30%. Demonstrate each step.	6	CO3	Apply

Customer ID	Transaction ID	Items Bought
1	0001	$\{a, d, e\}$
1	0024	$\{a, b, c, e\}$
2	0012	$\{a, b, d, e\}$
2	0031	$\{a, c, d, e\}$
3	0015	$\{b, c, e\}$
3	0022	$\{b, d, e\}$
4	0029	$\{c, d\}$
4	0040	$\{a, b, c\}$
5	0033	$\{a, d, e\}$
5	0038	$\{a, b, e\}$

NATIONAL INSTITUTE OF TECHNOLOGY PATNA

Department of Computer Science & Engineering

MID SEMESTER EXAMINATION, March. 2024

B. Tech: CSE, Semester-VI

Course Name: Network Security **Code: CS64153**

Maximum Time: 2 hours **Max. Marks: 30**

Instruction:

1. ***Attempt all questions.***
2. ***Assume any suitable data, if necessary.***
3. *The Marks, CO (Course Outcome) and BL (Bloom's Level) related to questions are mentioned on the right-hand margin.*

1.	a. Define Internet key exchange (IKE) and explain why it is needed in IPSec. b. A host receives an authenticated packet with the sequence number 331. The replay window spans from 200 to 263. What will the host do with the packet? Explain briefly. What is the window span after this event?	3+3	CO1, CO2	U, A
2.	A stream cipher which has two phases a key generation phase and an encryption phase. a. Explain a stream cipher which is used in GSM network for secure data transmission. b. Given the superincreasing tuple b = { 7, 11, 23,43,87,173, 357 }, r=41, modulus *n= 1001, encrypt and decrypt* "a " using the knapsack cryptosystem. *Use [7 6 5 1 2 3 4] as the permutation table.*	3+3	CO2	E
3.	a. Describe how key materials are created from master secret in SSL. b. Show how SSL or TLS reacts to a replay attack. That is show how SSL or TLS responds to an attacker that tries to replay one or more handshake messages.	3+3	CO3	A, U
4.	a. What are the requirements for Kerberos in an open distributed environment? b. Explain the message exchange to obtain Ticket grant, Service grant and target service.	3+3	CO2	U, R
5.	a. In PGP explain how Bob and Alice exchange the secret key for encrypting message. b. Mention the three ways of Denial of Service (DoS) attack which can be happened in a network.	3+3	CO4	U,P

****End of Questions****