

Hall Ticket Number :									
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R-19

Code: 19A551T

III B.Tech. I Semester Supplementary Examinations July 2022

Cloud Computing

(Computer Science & Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

	Marks	CO	Blooms Level
UNIT-I			
1. a) Which are the different types of cloud computing services? State the various desired features of cloud.	7M	CO1	L2
b) Write short note on Amazon cloud infrastructure.	7M	CO1	L2
OR			
2. a) Write short note on Google cloud infrastructure.	7M	CO1	L2
b) Explain the various ethical issues in cloud computing.	7M	CO1	L2
UNIT-II			
3. a) Describe the components of the scheduling and execution service that constitute the runtime infrastructure supporting Map Reduce.	7M	CO2	L1
b) Explain the architecture and working principle of Map Reduce.	7M	CO2	L2
OR			
4. a) Discuss the challenges and new application opportunities in cloud computing.	7M	CO2	L6
b) Discuss the role of Apache Hadoop in cloud computing.	7M	CO2	L2
UNIT-III			
5. a) What are the merits and demerits of virtualization in using cloud computing?	6M	CO3	L1
b) Explain optimization of network virtualization in Xen 2.0.	8M	CO3	L2
OR			
6. a) What is software fault isolation in cloud computing? Discuss in brief.	8M	CO3	L1
b) Define virtualization in cloud computing? What are the types and techniques of virtualization?	6M	CO3	L1
UNIT-IV			
7. a) Explain different storage models in cloud.	7M	CO4	L2
b) Explain following Cloud resource management policies in brief:			
i) Energy optimization			
ii) QoS guarantees	7M	CO4	L2
OR			
8. a) Explain various file systems in cloud.	7M	CO4	L2
b) What is dynamic threshold? What is the role of feedback control in cloud resource management?	7M	CO4	L1
UNIT-V			
9. a) Enlist and explain different forms of trust.	7M	CO5	L1
b) Explain the steps for configuring a server for EC2.	7M	CO5	L2
OR			
10. a) Enlist and describe security risks posted by shared images	7M	CO5	L1
b) Examine in detail about trust model for cloud security enforcement	7M	CO5	L3

****END****

Hall Ticket Number :

R-19

Code: 19A552T

III B.Tech. I Semester Supplementary Examinations July 2022

Computer Networks

(Computer Science & Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

	Marks	CO	Blooms Level
UNIT-I			
1. a) Compare OSI and TCP/IP reference model.	7M	CO1	L2
b) Discuss about protocols and standards.	7M	CO1	L2
OR			
2. a) What is a computer network? Classify the Categories of networks.	7M	CO1	L1
b) Why twisted pair cables are preferable over coaxial cables? Explain.	7M	CO1	L2
UNIT-II			
3. a) What are the different types of error detection methods? Explain the CRC error detection technique using generator polynomial x^4+x^3+1 and data 11100011	7M	CO2	L2
b) Demonstrate the Go-Back-N Automatic Repeat Request protocol algorithm for sender and receiver sites.	7M	CO2	L3
OR			
4. a) Discuss about High Level Data Link Control Protocol.	7M	CO2	L2
b) Describe the working principle of Carrier sense multiple access with collision Detection (CSMA/CD).	7M	CO2	L2
UNIT-III			
5. a) Distinguish between IPV4 options and IPV6 Extension Headers.	7M	CO3	L2
b) Illustrate Distance vector Routing algorithm with suitable example.	7M	CO3	L4
OR			
6. a) Analyze the fields in ARP Packet.	7M	CO3	L4
b) Explain in detail about Error Reporting in ICMP.	7M	CO3	
UNIT-IV			
7. Discuss about Congestion Control in TCP and Frame Relay.	14M	CO4	L2
OR			
8. a) Describe about the Stream Control Transmission Protocol.	7M	CO4	L2
b) List out the flow characteristics for Quality Of Service and Explain.	7M	CO4	L1
UNIT-V			
9. a) Define HTTP. List out HTTP Message Headers.	7M	CO5	L1
b) Draw the Architecture of the web and explain.	7M	CO5	L4
OR			
10. a) What is DNS? What are the Domain Resource Record types and explain.	7M	CO5	L1
b) Explain about Simple Mail Transfer Protocol and Extensions.	7M	CO5	L2

*****END*****

Code: 19A55CT

III B.Tech. I Semester Supplementary Examinations July 2022

Cryptography and Network Security

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

Marks	CO	Blooms Level
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UNIT-I

- | | | | |
|--|----|---|---|
| 1. a) The terms threat and attack are commonly used to mean more or less the same thing. Justify your answer. Support it with examples. | 7M | 1 | 2 |
| b) Why Security is still too often an afterthought to be incorporated into a system after the design is complete rather than being an integral part of the design process? | 7M | 1 | 4 |

OR

- | | | | |
|--|----|---|---|
| 2. a) Give examples to illustrate each concept included in the Security Requirements Triad. | 7M | 1 | 1 |
| b) What are the two related concepts covered by confidentiality and integrity respectively? Support your answer. | 7M | 1 | 2 |

UNIT-II

- | | | | |
|--|----|---|---|
| 3. a) Let b be a byte in bit form and let b' be B + 11111111 (the complement of b). For a fixed given key, if AES encrypts b to g, does AES encrypt b' to g'. Justify your answer. | 7M | 2 | 4 |
| b) What are conventional approaches to attack RSA mathematically? "Security of RSA depends on the performance of the algorithm for computing prime factors"- Justify. | 7M | 2 | 2 |

OR

4. a) Suppose Tom wishes to send a text message M to Jerry using the RSA algorithm.

Jerry's public key is the pair $(n, e) = (253, 13)$. Note that $253 = (23)(11)$ and $(17)(13) = 1 \pmod{220}$. Tom uses an alphabet set of only 10 letters and encodes them as A= 0, C = 1, D = 2, G = 3, I = 4, N = 5, O = 6, R = 7, T = 8, U = 9.

Tom transmits the message in blocks. Each block corresponds to two letters which are encoded into their numerical equivalents, e.g. CU becomes [19] and then it is enciphered by using RSA.

(i) if Tom wants to send the text "GO", what cipher will be received by Jerry?

(ii) if Jerry receives the cipher text [11], what was the message transmitted by Tom?

- | | | | |
|---|----|-----|----|
| b) In RSA Algorithm, show that 'e' must be odd. | 7M | CO2 | L2 |
|---|----|-----|----|

UNIT-III

5. a) State Chinese remainder theorem (CRT) and find X for the given set of congruent equations using CRT

$$X = 1(\text{mod } 5)$$

$$X = 2(\text{mod } 3)$$

$$X = 2(\text{mod } 7)$$

$$X = 3(\text{mod } 5)$$

$$X = 3(\text{mod } 9)$$

$$X = 2(\text{mod } 7)$$

$$X = 4(\text{mod } 11)$$

7M	3	3
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- b) What four requirements were defined for Kerberos? What problem was Kerberos designed to address? In the context of Kerberos, what is a realm? What are the principal differences between version 4 and version 5 of Kerberos ?

7M	3	1
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OR

6. a) In the discussion of subkey generation in CMAC, it states that the block cipher is applied to the block that consists entirely of 0 bits. The first subkey is derived from the resulting string by a left shift of one bit and, conditionally, by XORing a constant that depends on the block size. The second subkey is derived in the same manner from the first subkey.

i. What constants are needed for block sizes of 64 and 128 bits?

ii. Explain how the left shift and XOR accomplishes the desired result.

7M	3	2
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- b) Is it necessary to recover the secret key in order to attack a MAC algorithm? What changes in HMAC are required in order to replace one underlying hash function with another?

7M	3	4
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UNIT-IV

7. a) Analyze the Cryptographic algorithms used in S/MIME and Explain S/MIME certification processing.

7M	4	1
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- b) How does PGP provide authentication and confidentiality for email services and for file transfer applications? Draw the block diagram and explain the components.

7M	4	3
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OR

8. a) What are the content types provided by S/MIME? Explain.

7M	4	1
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- b) How is an enveloped data MIME entity prepared? Write the steps.

7M	4	2
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UNIT-V

9. a) Write briefly about the signature-based Intrusion Detection Systems.

7M	5	2
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- b) What is Transport mode and Tunnel mode? Explain about the scope of AH and ESP in these modes?

7M	5	2
----	---	---

OR

10. a) What is an audit record? What is the use of audit record in intrusion detection?

7M	5	1
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- b) What are the services provided by IPSec? Where can be the IPSec located on a network?

7M	5	4
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END

Code: 19A543T

II B.Tech. II Semester Supplementary Examinations July/August 2022

Formal Languages and Automata Theory

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

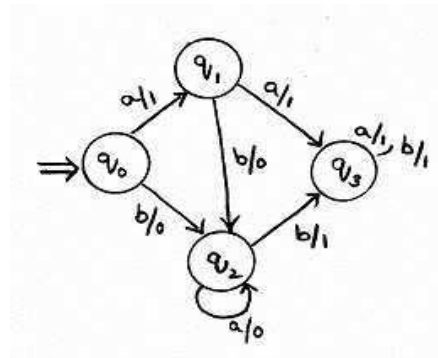
Marks CO Blooms Level

UNIT-I

1. a) What are the difference between NFA and DFA? 4M CO1 L5
 b) Explain about Chomsky hierarchy of languages? 10M CO1 L2

OR

2. a) Compare and contrast Moore Machine with Melay Machine? 4M CO1 L5
 b) Construct the Moore machine for the Melay machine given below?



10M CO1 L5

UNIT-II

3. a) Define Regular Expression and Regular Set? 4M CO2 L1
 b) Write regular expression for the following
 i) The set of all Strings of 0's and 1's string begin with 0 and end with 1. 3M
 ii) The set of all strings over {0,1} having even number of 0's and even number of 1's 3M
 iii) The set of all strings with 1100 as substring over the $\Sigma = \{0,1\}$ 4M CO2 L2

OR

4. a) State and explain the Pumping Lemma for Regular sets? 4M CO2 L2
 b) Prove that $L = \{ a^n b^n / n > 0 \}$ is not regular using pumping lemma? 10M CO2 L6

UNIT-III

5. a) How do you simplify Context Free Grammars? Explain with examples? 6M CO3 L4
 b) Give the Context Free Grammar generating the set of palindromes over an alphabet, $\Sigma = \{a, b\}$? 8M CO3 L3

OR

6. a) Convert the following CFG into Griebach Normal Form?

S XA | BB
 B b | SB
 X b
 A a

8M CO3 L6

- b) Convert the following grammar into CNF?

S aAD
 A aB/bAB
 B b
 D d.

6M CO3 L6

UNIT-IV

7. a) Define mathematical model of Pushdown Automata? What are the different ways of string acceptance in PDA?

4M CO4 L1

- b) Construct PDA for the Language $L = \{ a^n b^m \mid n > m \}$?

10M CO4 L5

OR

8. a) Briefly explain about DPDA?

4M CO4 L2

- b) Let G be a CFG with the following productions. Construct a PDA M such that the language generated by M and G are equivalent?

S aBc
 A abc
 B aAb
 C AB/c

10M CO4 L5

UNIT-V

9. a) What is Turing machine? Give the various types of Turing machines?

6M CO5 L1

- b) Describe in detail about Turing reducibility and Halting Problem?

8M CO5 L2

OR

10. a) Design a Turing Machine that accepts the language $L = \{ ww^R/w \in \{a, b\}^* \}$.

9M CO5 L6

- b) Explain church's hypothesis?

5M CO5 L2

Hall Ticket Number :

R-19

Code: 19A55GT

III B.Tech. I Semester Supplementary Examinations July 2022

Linux Programming

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

Marks CO Blooms Level

UNIT-I

1. a) **Explain** Layered architecture and kernel role in Linux with neat Diagram? 7M CO1 L2
 b) **Compare** the comm., comp and diff text processing utilities. 7M CO1 L3

OR

2. a) **Differentiate** stream editor and line editor. **How** to print only blank line using Sed Command? 7M CO1 L2
 b) **Write** a command to print the third field of each line. In the text file, some lines are delimited by colon and some are delimited by space. 7M CO1 L2

UNIT-II

3. a) **Explain** by writing a script using system time, to show GOOD Morning, GOOD AFTERNOON, and GOODNIGHT. 7M CO2 L2
 b) **Differentiate** between a file locking and record locking. 7M CO2 L3

OR

4. a) **Compare** stat () and create () function with examples? 7M CO2 L3
 b) **Differentiate** stat (), fstat () and lstat() with example? 7M CO2 L3

UNIT-III

5. a) **How** many ways a process goes to wait state or termination state forcefully? 7M CO3 L2
 b) **Describe** SIGKILL and SIGINT with examples? 7M CO3 L2

OR

6. a) **Describe** the Linux System Calls used for Process Management: 7M CO3 L2
 b) **Elaborate** different versions of exec () with examples? 7M CO3 L2

UNIT-IV

7. a) **Differentiate** pipe and named pipe concepts in IPC process. 7M CO4 L3
 b) **Create** a pipe to redirect the input of one command to other Command. 7M CO\$ L3

OR

8. a) **Create** a FIFO to build the communication channel between two processes and give the advantages and disadvantages of Files. 7M CO4 L4
 b) **Illustrate** pipes? Explain their limitations. Explain how named pipes are replaced to overcome the drawback of pipe in IPC with an examples 7M CO4 L3

UNIT-V

9. a) **Demonstrate** race conditions with shared memory? 7M CO5 L3
 b) **Demonstrate** client and server programming using TCP protocol? 7M CO5 L3

OR

10. a) **Explain** about socket () , listen(), accept() system calls in Linux? 7M CO5 L2
 b) **Illustrate** by writing a c program to implement UDP chat client server? 7M CO5 L3

END

Hall Ticket Number :

R-19

Code: 19A55LT

III B.Tech. I Semester Supplementary Examinations July 2022

R Programming

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5 x 14 = 70Marks)

		Marks	CO	Blooms Level
UNIT-I				
1.	a) Explain different data structures in R	6M	CO1	L2
	b) Write R program for demonstrating any one data structure	8M	CO1	L1
OR				
2.	a) Explain common vector operations in R.	6M	CO1	L2
	b) Write a R program to find the minimum and the maximum of a Vector	8M	CO1	L1
UNIT-II				
3.	a) Explain about the uses of matrices in R.	6M	CO2	L2
	b) Write a R program to create an array of two 3x3 matrices each with 3 rows and 3 columns	8M	CO2	L1
OR				
4.	a) Explain in detail about arrays with example R code.	7M	CO2	L2
	b) Write a R program to create a list containing strings, numbers, vectors and a logical values	7M	CO2	L1
UNIT-III				
5.	a) Explain in detail about data frame creation methods with example R code.	7M	CO3	L2
	b) Write R program to get the statistical summary and nature of the data of a given data frame.	7M	CO3	L1
OR				
6.	a) Explain the purpose of Replacement functions in R with sample code.	7M	CO3	L2
	b) Explain various Control statements with R syntax	7M	CO3	L2
UNIT-IV				
7.	a) Explain in detail about S3 Classes with sample R code	8M	CO4	L2
	b) Compare of S3 and S4 classes	6M	CO4	L5
OR				
8.	a) Explain overview of various String Manipulation functions with sample R code	8M	CO4	L2
	b) Explain various customizing graphs operations in R	6M	CO4	L2
UNIT-V				
9.	a) Explain the tasks of Interfacing R to other languages	7M	CO5	L2
	b) Explain the Basic Statistics functions Frequencies and Partition Values	7M	CO5	L2
OR				
10.	a) Describe the Generalized Linear models	7M	CO5	L2
	b) Explain the role of Time Series and Auto-correlation	7M	CO5	L2

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Hall Ticket Number :									
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R-19

Code: 19A55HT

III B.Tech. I Semester Supplementary Examinations July 2022

Software Project Management
(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

		Marks	CO	Blooms Level
UNIT-I				
1.	a) Discuss about waterfall model with a neat sketch and highlight any two of its advantages and disadvantages?	7M	CO1	L2
	b) Examine why the success rate of software projects is very low, and discuss the steps taken to avoid those failures?	7M	CO1	L2,L3
OR				
2.	a) Explain about three generations of software economics leading to the target objective?	7M	CO1	L2
	b) Discuss the various key practices to improve the software quality?	7M	CO1	L2
UNIT-II				
3.	Explain any 14 principles used in conventional software engineering?	14M	CO2	L2
OR				
4.	Define Software development plan (SDP)? With a neat sketch, discuss the typical SDP plan outline?	14M	CO2	L1
UNIT-III				
5.	Explain about the artifacts and life cycle phases associated with each workflow?	14M	CO3	L1
OR				
6.	Explain the workflow of an iteration with an neat diagram	14M	CO3	L1
UNIT-IV				
7.	Explain in detail about the default Project organizations and responsibilities?	14M	CO4	L2
OR				
8.	Explain the typical automation and tool components that supports process workflows with a neat sketch?	14M	CO4	L2
UNIT-V				
9.	Write short notes on i) Management indicators ii) Quality indicators	14M	CO5	L1
OR				
10.	List and explain the basic characteristics of good metrics	14M	CO5	L1,L2

****END****

Hall Ticket Number :									
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R-19

Code: 19A551T

III B.Tech. I Semester Supplementary Examinations July 2022

Advanced Java Programming
(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

Marks	CO	Blooms Level
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UNIT-I

- | | | | |
|--|----|-----|------|
| 1. a) Outline the skeleton of a JavaFX application and interpret the methods used. | 7M | CO1 | BL-4 |
| b) Illustrate the application class and the life-cycle methods. | 7M | CO1 | BL-3 |

OR

- | | | | |
|---|----|-----|------|
| 2. a) Interpret the mechanism of JavaFX events and button. | 7M | CO1 | BL-2 |
| b) Examine the task of drawing on a canvas with a suitable program. | 7M | CO1 | BL-3 |

UNIT-II

- | | | | |
|--|----|-----|------|
| 3. a) How to handle the change events in a toggle group? Discuss. | 6M | CO2 | BL-2 |
| b) Develop a Java program that creates a simple menu bar that contains three menus. The first is a standard File menu that contains Open, Close, Save, and Exit selections. The second menu is called Options, and it contains two submenus called Colors and Priority. The third menu is called Help, and it has one item: About. | 8M | CO2 | BL-6 |

OR

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|--|----|-----|------|
| 4. a) Design a Java program that implements the task of adding an image to a label | 6M | CO2 | BL-6 |
| b) Demonstrate the usage of the effects and the transforms in GUI. | 8M | CO2 | BL-3 |

UNIT-III

- | | | | |
|--|----|-----|------|
| 5. a) Write a simple JDBC program to store textbook information like book name, bookid, cost, number of pages, author name into the database by using statement interface. | 8M | CO3 | BL-3 |
| b) Is it possible to handle multiple results from a statement interface? Discuss. | 6M | CO3 | BL-2 |

OR

- | | | | |
|---|----|-----|------|
| 6. a) Explain how to set auto-commit mode and rolling back data into database with a suitable JDBC program? | 8M | CO3 | BL-2 |
| b) Show the mechanism related to processing the result sets and making changes to a result set. | 6M | CO3 | BL-1 |

UNIT-IV

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|--|----|-----|------|
| 7. a) Generate a servlet that illustrates the usage of cookies and session state. | 8M | CO4 | BL-6 |
| b) Analyze the basic steps to be followed for building and testing a simple servlet. | 6M | CO4 | BL-4 |

OR

- | | | | |
|--|----|-----|------|
| 8. a) Compose a servlet that handles an HTTP POST request. | 7M | CO4 | BL-6 |
| b) Summarize and describe the interfaces that are provided in the javax.servlet package. | 7M | CO4 | BL-2 |

UNIT-V

- | | | | |
|--|----|-----|------|
| 9. a) Assess the procedure for accessing properties using jsp:getProperty and jsp:setProperty. | 8M | CO5 | BL-5 |
| b) Compare the JSP and servlets. How to make a bean available? | 6M | CO5 | BL-5 |

OR

- | | | | |
|--|----|-----|------|
| 10. a) Discuss in detail about the scripting elements and the standard action elements in JSP. | 8M | CO5 | BL-2 |
| b) Infer the process of setting a property value from a request using a suitable example. | 6M | CO5 | BL-3 |

****END****

Hall Ticket Number :									
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R-19

Code: 19A55BT

III B.Tech. I Semester Supplementary Examinations July 2022

Artificial Neural Networks

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

	Marks	CO	Blooms Level
UNIT-I			
1. a) What is Artificial Neural Network? Describe the characteristics of neural networks.	7M	CO1	L4
b) Explain the working principles of single input neuron, multiple inputs neuron and neurons with „R” number of inputs.	7M	CO1	L2
OR			
2. a) Explain various function aspects of artificial neuron model with respect to bias, weighted inputs and activation functions.	7M	CO1	L2
b) What are different types of learning methods in Artificial Neural Networks?	7M	CO1	L4
UNIT-II			
3. a) What are the mapping networks in Feed Forward Neural Networks? Explain.	8M	CO2	L4
b) Discuss in detail about Feed Backward Neural Networks.	6M	CO2	L2
OR			
4. a) Analyze linear auto associative Feed forward networks	7M	CO2	L4
b) Discuss about Boltzmann machine	7M	CO2	L2
UNIT-III			
5. a) Design the Support Vector Machine for Classification Problem. Explain various mathematical functions used behind it.	7M	CO3	L6
b) List and explain various practical and design issues of back propagation learning.	7M	CO3	L1
OR			
6. a) What is inner product kernels? Explain inner product kernels for various types of Support Vector Machines.	8M	CO3	L4
b) What is universal approximation theorem? Explain approximation properties of Radial Basis Function networks.	6M	CO3	L4
UNIT-IV			
7. a) Discuss algorithm for storage of conformation in Hopfield network. Explain recall algorithm.	7M	CO4	L2
b) Sketch the architecture of Boltzmann network and mention the steps for recall Procedure	7M	CO4	L3
OR			
8. a) Explain the concept of Simulated Annealing. Also write the basic steps used in Simulated Annealing Network.	7M	CO4	L2
b) Write the difference between Boltzmann machine and Hopfield Network.	7M	CO4	L1
UNIT-V			
9. a) Explain the architecture of Grossberg layer and its learning algorithm.	7M	CO5	L2
b) Derive the training algorithm of Kohonen network.	7M	CO5	L6
OR			
10. a) Write a short note on Growing Neural Gas Algorithm.	7M	CO5	L1
b) Explain how SOMs can be used for data compression.	7M	CO5	L2

****END****