

**(M19CST1101)**  
**SAGIRAMAKRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech I SEMESTER (R19) Regular Examinations**  
**Model Question Paper**  
**Subject: Mathematical Foundation of Computer Science**  
**(For CST )**

**Time: 3 Hours**

**Max.Marks 75**

**Answer ONE question from EACH UNIT**

**All questions carry equal marks**

			CO	KL	M
		<b>UNIT - I</b>			
1	a)	Suppose $f(x) = \frac{c}{3^x}$ for $x = 1, 2, 3, \dots, n$ the probability function of a random variable X, then (i) determine the value of c (ii) find the distribution function of X & $P(X \geq 3)$	CO1	K2	7
	b)	The joint probability function of two discrete random variables X and Y is given by $f(x,y) = c(2x+y)$ where X and Y can assume all integers such that $0 \leq x \leq 2, 0 \leq y \leq 3$ and $f(x,y) = 0$ otherwise. Find i) the value of c ii) E(X) iii) E(Y) iv) Var(X) and Var(Y).	CO1	K3	8
		<b>(OR)</b>			
2	a)	Let X and Y have joint density function $f(x,y) = \begin{cases} 2e^{-(x+y)} & \text{for } x \geq 0; y \geq 0 \\ 0 & \text{otherwise} \end{cases}$ Then find conditional expectation of (i) Y on X (ii) X on Y	CO2	K1	8
	b)	Explain about Chebyshev's Inequality and the utility in statistics	CO2	K2	7
		<b>UNIT - II</b>			
3	a)	It has been claimed that in 60% of all solar installations' utility bill reduced to by one-third. Accordingly, what are probabilities utility bill reduced to by at least one-third (i) in four of five installations and (ii) at least four of five installations	CO2	K2	8
	b)	Derive the mean, variance, coefficient skewness & kurtosis for Poisson's distribution	CO2	K3	7
		<b>(OR)</b>			
4	a)	If 20% of memory chips made in a certain plant are defective, then what are the probabilities, that a randomly chosen 100 chips for inspection (i) at most 15 will be defective (ii) at least 25 will be defective (iii) in between 16 and 23 will be defective	CO2	K2	8
	b)	Derive the mean and variance of Exponential distribution.	CO2	K3	7

UNIT - III																										
5	a)	The following shows corresponding values of three variables X,Y,Z. Find least square regression equation $Z = a + bx + cy$	CO4	K3	8																					
		<table border="1"> <tr> <td>x</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>y</td> <td>2</td> <td>3</td> <td>1</td> <td>1</td> <td>2</td> </tr> <tr> <td>z</td> <td>12</td> <td>19</td> <td>8</td> <td>11</td> <td>18</td> </tr> </table>	x	1	2	1	2	3	y	2	3	1	1	2	z	12	19	8	11	18						
x	1	2	1	2	3																					
y	2	3	1	1	2																					
z	12	19	8	11	18																					
	b)	Explain the procedure for fitting an exponential curve of the form $y = ae^{bx}$ .	CO4	K2	7																					
		(OR)																								
6	a)	What the properties of a good estimator. Explain each of them	CO3	K1	7																					
	b)	Suppose that n observations $X_1, X_2, \dots, X_n$ are made from normal distribution and variance is unknown. Find the maximum likelihood estimate of the mean.	CO3	K3	8																					
UNIT - IV																										
7	a)	Prove that in any non- directed graph there is even number of vertices of odd degree.	CO4	K1	8																					
	b)	State and prove Euler's formula for planar graphs	CO4	K2	7																					
		(OR)																								
8	a)	Prove that a tree with 'n' vertices have 'n-1' edges	CO4	K3	7																					
	b)	If T is a binary tree of n vertices, show that the number of pendant vertices is $\frac{(n+1)}{2}$	CO4	K1	8																					
UNIT - V																										
9	a)	Using the principles of Inclusion and exclusion find the number of integers between 1 and 100 that are divisible by 2, 3 or 5	CO5	K3	7																					
	b)	Find the number of integral solutions for $x_1 + x_2 + x_3 + x_4 + x_5 = 50$ where $x_1 \geq 4, x_2 \geq 7, x_3 \geq 14, x_4 \geq 10, x_5 \geq 0$	CO5	K2	8																					
		(OR)																								
10	a)	Solve the recurrence relation $a_n - 7a_{n-1} + 12a_{n-2} = 0$ for $n \geq 2$ using Generating function method.	CO5	K2	8																					
	b)	Solve $a_n - 7a_{n-1} + 10a_{n-2} = 4^n$ for $n \geq 2$ .	CO6	K2	7																					

**[M19CST1102]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech I Semester (R19) Regular Examinations**  
**Advanced Data Structures**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			CO	KL	M
<b>UNIT - I</b>					
1.	a).	What is Abstract data type? Explain Implementation of Dictionaries	1	2	8
	b).	Explain Separate Chaining with example	1	2	7
<b>OR</b>					
2.	a).	Following elements are inserted into an empty hash table with hash function $f(x) = x \% 17$ and quadratic probing. Explain. 58, 48, 79, 46, 54, 32, 24, 19, 18.	1	3	8
	b).	What is the importance of Double hashing technique	1	2	7
<b>UNIT - II</b>					
3.	a).	What is the need of Randomizing data structure? Give an example	2	2	7
	b).	Explain Search Operation algorithm on Skip Lists.	2	2	8
<b>OR</b>					
4.	a).	Explain Probabilistic analysis of Skip Lists with example	2	2	7
	b).	Explain Update operations on Skip Lists	2	2	8
<b>UNIT - III</b>					
5.	a).	Explain briefly about Binary Search tree	3	2	8
	b).	Describe Red Black tree algorithm with example	3	2	7
<b>OR</b>					
6.	a).	What is AVL tree? Show the result of inserting 3, 1, 4, 6, 9, 2, 5, 7 into an initially empty AVL tree?	3	3	8
	b).	Differentiate B-trees and 2-3 Trees with example	3	2	7
<b>UNIT - IV</b>					
7.	a).	Write about Boyer-Moore Algorithm and explain in detail	4	2	8
	b).	What is Longest Common Subsequence Problem(LCS)	4	2	7
<b>OR</b>					
8.	a).	List the advantages and disadvantages of Tries	4	2	7
	b).	Explain about Brute-Force Pattern Matching	4	2	8
<b>UNIT - V</b>					
9.	a).	Write a brief notes Two Dimensional Range Searching	5	2	7
	b).	How to Construct a Priority Search Tree? Explain in detail.	5	2	8
<b>OR</b>					
10.	a).	Discuss Recent trends in Hashing and Trees	5	2	8
	b).	Explain K-D Trees in Detail with example	5	2	7

**CO: Course Outcome KL: Knowledge Level M: Marks**

**[M19CST1103]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech I Semester (R19) Regular Examinations**  
**Artificial Intelligence**  
**Branch: Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

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			CO	KL	M
<b>UNIT - I</b>					
1.	a).	Explain the various application areas of AI	1	2	7
	b).	Write the AO* algorithm in detail	1	2	8
<b>OR</b>					
2.	a).	Discuss various heuristic search techniques	1	2	8
	b).	Explain the various problem characteristics of AI	1	2	7
<b>UNIT - II</b>					
3.	a).	Check the given propositional calculus expressions are equivalent or not ( $P \rightarrow Q \rightarrow R$ ) AND ( $P \rightarrow Q \wedge Q \rightarrow R$ )	2	3	9
	b).	Prove the given expression is tautology ( $P \wedge Q \wedge R$ ) $\vee$ $\sim P$	2	3	6
<b>OR</b>					
4.	a).	Explain the unification algorithm with example	2	2	6
	b).	Discuss about resolution refutation in propositional logic	2	2	9
<b>UNIT - III</b>					
5.	a).	Represent the knowledge using semantic network for the mobile device	3	3	7
	b).	Construct the script for patient visiting the hospital	3		
<b>OR</b>					
6.	a).	Draw & explain the components of Expert system architecture	3	2	7
	b).	Discuss about rule based expert system in detail.	3	2	8
<b>UNIT - IV</b>					
7.	a).	Discuss about Bayesian belief networks in detail	4	2	6
	b).	How can we use dampster Shafer theory for prediction?	4	3	9

		<b>OR</b>			
8.	a).	What is fuzzy set & list out the operations on fuzzy set	4	2	7
	b).	Write about different types of membership functions	4	2	8
		<b>UNIT - V</b>			
9.	a).	How the support vector machines can be used in machine learning?	5	3	9
	b).	Differentiate the supervised & unsupervised learning	5	3	6
		<b>OR</b>			
10.	a).	Design a Perceptron for EX-OR gate logic	5	3	8
	b).	Draw the structure of multi layered forward networks	5	2	7

**CO: Course Outcome**

**KL: Knowledge Level**

**M: Marks**

**[M19CST1104]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech I Semester (R19) Regular Examinations**  
**CLOUD COMPUTING**  
**(Computer Science and Technology)**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			<b>CO</b>	<b>KL</b>	<b>M</b>
<b>UNIT - I</b>					
1.	a).	Define Distributed Computing, Grid Computing and give an example	CO1	K1	6
	b).	Mention the technologies for Memory, Storage and Wide area networking	CO1	K2	9
<b>OR</b>					
2.	a).	Explain Peer-to-Peer Network families	CO1	K2	8
	b).	Write short note on Service-Oriented Architecture	CO1	K2	7
<b>UNIT - II</b>					
3.	a).	Define Cloud Computing and mention the properties and characteristics of cloud computing?	CO1	K1	8
	b).	Explain cloud deployment models giving an example for each.	CO1	K2	7
<b>OR</b>					
4.	a).	Define Virtualization and explain the different types of virtualization?	CO1	K1	6
	b).	Write a short note on cloud resources.	CO1	K2	9
<b>UNIT - III</b>					
5.	a).	Explain cloud computing service models?	CO2	K2	6
	b).	Explain Resource Virtualization.	CO2	K2	9
<b>OR</b>					
6.	a).	Explain PaaS with a case study.			9
	b).	Write a short note on web services?	CO2	K2	6
			CO2	K2	
<b>UNIT - IV</b>					
7.	a).	Write short note on Hadoop library from Apache.	CO3	K2	7
	b).	Explain Microsoft Azure programming support	CO3	K2	8
<b>OR</b>					
8.	a).	Write short note on Programming support of Google APP engine	CO3	K2	7

	b).	Write short note on Open Source Eucalyptus, Nimbus, OpenNebula and OpenStack	CO3	K2	8
<b>UNIT - V</b>					
9.	a).	Write short note on cloud provenance and metadata.	CO4	K2	7
	b).	Explain cloud reliability and fault tolerance	CO4	K2	8
<b>OR</b>					
10.	a).	Explain the key privacy concerns in cloud computing?	CO4	K2	6
	b).	Write a short note on cloud federation, interoperability and standards	CO4	K2	9

**CO: Course Outcome**

**KL: Knowledge Level**

**M: Marks**

**[M19CST1105]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech I Semester (R19) Regular Examinations**  
**DIGITAL IMAGE PROCESSING**  
**Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			<b>CO</b>	<b>KL</b>	<b>M</b>
<b>UNIT - I</b>			CO1	K1	8
1.	a).	Describe basic geometric transformations	CO2	K2	7
	b).	Explain Walsh transform			
<b>OR</b>					
2.	a).	Explain fundamental steps in Image processing	CO1	K2	8
	b).	State Fourier Transform	CO2	K1	7
<b>UNIT - II</b>					
3.	a).	Distinguish between spatial filtering and domain filtering	CO2	K2	8
	b).	Explain about smoothing filters	CO2	K2	8
<b>OR</b>					
4.	a).	Classify various image enhancement filters.	CO2	K4	8
	b).	Describe Noise models	CO2	K1	7
<b>UNIT - III</b>					
5.	a).	Explain various edge enhancement filters	CO2	K2	8
	b).	Classify morphology operation.	CO1	K4	7
<b>OR</b>					
6.	a).	Explain Characteristics of Segmentation, and Detection of Discontinuities	CO1	K2	8
	b).	Explain about region based segmentation method	CO1	K2	7
<b>UNIT - IV</b>					
7.	a).	Distinguish between Supervised and unsupervised learning	CO2	K2	8
	b).	Explain pattern recognition	CO1	K2	7
<b>OR</b>					
8.	a).	Explain about random forest	CO2	K2	8
	b).	Distinguish between parametric and Non-parametric methods	CO2	K2	7
<b>UNIT - V</b>					
9.	a).	Distinguish between feature selection versus feature extraction	CO1	K2	8
	b).	State probability theory	CO2	K2	7
<b>OR</b>					
10.	a).	Classify Low-rank methods	CO2	K4	8
	b).	Describe dimensionality reduction	CO2	K1	7

**[M19CST1106]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE(A)**  
**I M.TECH I SEMESTER(R19) REGULAR EXAMINATIONS**  
**ADVANCED OPERATING SYSTEMS**  
**(COMPUTER SCIENCE AND ENGINEERING)**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs**

**Max.Marks: 75M**

**Answer ONE QUESTION from EACH UNIT**  
**All questions carry equal marks**

			CO	KL	M
<b>UNIT-I</b>					
1	a	Explain in detail about multiprocessor operating system architectures	1	1	8
	b	Define OS. Explain in detail about structure of OS	1	1	7
<b>OR</b>					
2	a	Briefly discuss about design issues	1	1	8
	b	Explain about different multiprocessor operating systems	1	1	7
<b>OR</b>					
<b>UNIT-II</b>					
3	a	What is mutual exclusion? explain in detail about mutual exclusion in distributed operating systems	1	1	7
	b	Discuss about different election algorithms	1	2	8
<b>OR</b>					
4	a	Discuss about communication models and clock synchronization in distributed operating systems	1	1	8
	b	Explain in detail about distributed deadlock detection	1	2	7
<b>UNIT-III</b>					
5	a	What is shared memory? Explain distributed shared memory	2	1	7
	b	Explain file systems in distributed environment	2	1	8
<b>OR</b>					
6	a	Discuss about file placement and caching	2	1	7
	b	Explain multimedia file systems in distributed environment	2	1	8
<b>UNIT-IV</b>					
7	a	What is the requirement of database operating system? Explain	2	1	8
	b	Write about synchronization primitives	2	1	7
<b>OR</b>					
8	a	Explain in detail about transaction process mode	2	1	7
	b	Write about concurrency control algorithms	2	2	8
<b>UNIT-V</b>					

9	a	Explain about ARM and Intel architectures	3	1	8
	b	Discuss about kernel structure and native level programming	3	1	7
<b>OR</b>					
10	a	Discuss about mobile operating systems architectures	3	1	8
	b	Write about runtime issues in mobile operating systems	3	1	7

[M19CST1107]  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech I Semester (R19) Regular Examinations**  
**OPTIMIZATION TECHNIQUES**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			CO	KL	M
<b>UNIT - I</b>					
1.	a).	State the optimization problem. Classify and explain various types of optimization problems with examples	1	2	8
	b).	Explain typical applications of operation research in industry	1	2	7
<b>OR</b>					
2.	a).	Discuss the various phases in solving an operations research problem.	1	3	8
	b).	State necessary & Sufficient conditions for multivariable optimization problem without constraints	1	2	7
<b>UNIT - II</b>					
3.	a).	Discuss about graphical solution revised simplex method	1	2	7
	b).	What is dual simplex method? explain in detail	1	2	8
<b>OR</b>					
4.	a).	Solve the following LPP by simplex method Minimize $Z = -6x_1 - 2x_2 - 6x_3$ subject to $2x_1 - 3x_2 + x_3 \leq 14$ $-4x_1 + 4x_2 + 10x_3 \leq 46$ $2x_1 + 2x_2 - 4x_3 \leq 37$ $x_1 \geq 2x_2 \geq 1x_3 \geq 3$	2	3	7
	b).	Explain dual simplex method	2	2	8
<b>UNIT - III</b>					
5.	a).	Compare transportation problem with simplex method	2	2	7
	b).	Explain Kuhn-Tucker conditions min cost flow problem	2	2	8
<b>OR</b>					
6.	a).	Explain max flow problem in detail	2	3	8
	b).	Explain Nonlinear programming problem	2	2	7
<b>UNIT - IV</b>					
7.	a).	Discuss about geometric programming	3	2	8
	b).	Briefly discuss about scheduling and sequencing	3	3	7
<b>OR</b>					
8.	a).	Explain different multi server models	3	2	8
	b).	Explain deterministic inventory models	3	2	7
<b>UNIT - V</b>					
9.	a).	What is dynamic Programming? explain in detail	4	2	7
	b).	Explain about Game theory simulation	4	2	8
<b>OR</b>					
10.	a).	Explain about single channel problem model	4	2	8
	b).	Discuss about Elementary graph theory	4	2	7

**[M19CST1108]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech I Semester (R19) Regular Examinations**  
**BIG DATA ANALYTICS**  
**Department of Computer Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			CO	KL	M
<b>UNIT - I</b>					
1.	a).	Implement Simple Java Program using Generic Types. Explain Generic Types.	1	3	8
	b).	Differentiate Stacks and Queues.	1	2	7
<b>OR</b>					
2.	a).	Explain the concept of serialization.	1	2	8
	b).	Discuss about Generic Variables with examples	1	2	7
<b>UNIT - II</b>					
3.	a).	Explain about Google File System	2	2	7
	b).	Explain the architecture of Building blocks of Hadoop.	2	2	8
<b>OR</b>					
4.	a).	Mention the configuration of Hadoop Cluster using Fully Distributed Mode in detail	2	2	8
	b).	Name different configuration files in Hadoop?	2	2	7
<b>UNIT - III</b>					
5.	a).	Explain how matrix multiplication is carried out using Map Reduce algorithm	3	2	8
	b).	Write about Driver Code in HadoopMapReduce.	3	2	7
<b>OR</b>					
6.	a).	Describe the old and new Java MapReduce APIs	3	2	8
	b).	How to specify a combiner function? Write a program on application to find the maximum temperature, using a combiner function for efficiency.	3	2	7
<b>UNIT - IV</b>					
7.	a).	Explain about the Writable wrappers for Java primitives.	4	2	8
	b).	What is writable comparable interface?	4	2	7
<b>OR</b>					
8.	a).	Write briefly about Writable Concepts i. Text ii. Bytes writable	4	2	7
	b).	Explain about the implementation of raw comparator and custom raw comparator with an example.	4	2	8
<b>UNIT - V</b>					
9.	a).	Write a brief notes on distributed modes of running PIG Scripts.	5	2	8

	b).	How to create and Manage the database and tables using Hive	5	2	7
		<b>OR</b>			
10.	a).	Illustrate the Architecture of PIG	5	2	8
	b).	Explain how the Data Manipulation Language Works.	5	2	7

**CO: Course Outcome**

**KL: Knowledge Level**

**M: Marks**

**(M19CST1109)**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE(A)**  
**I M.Tech I Semester(R19) Regular Examinations**  
**APPLIED CRYPTOGRAPHY**  
**COMPUTER SCIENCE AND ENGINEERING**  
**MODEL QUESTION PAPER**

**TIME:3Hrs**

**Max.Marks:75M**

Answer ONE Question from EACH UNIT

All questions carry equal marks

			CO	KL	M
		UNIT-1			
1.	a.)	Explain Advanced Protocols	1	1	7
	b.)	Write about blind signatures and public key cryptography	1	1	8
		OR			
2.	a.)	Classify the block cipher modes of operation	1	1	8
	b.)	Explain block cipher design principles in detail	1	1	7
		UNIT-2			
3.	a.)	State and prove Euler's Theorem and Determine $\phi(37)$ and $\phi(35)$	3	2	8
	b.)	Define a Primitive root. Find all primitive roots of 25	3	3	7
		OR			
4.	a.)	Summarize DES encryption algorithm	3	2	8
	b.)	Explain CAST-128 cipher	3	2	7
		UNIT-3			
5.	a.)	Differentiate Sequence generators and Linear Congruential generators	2	1	7
	b.)	Explain stream ciphers using LFSR,RC4	2	1	8
		OR			
6.	a.)	Compare the principle characteristics of MD5,SHA-1	4	2	7
	b.)	Analyze message authentication using MAC	4	2	8
		UNIT-4			
7.	a.)	Perform encryption and decryption using RSA algorithm for $p=5, q=11, e=3$ and $M=9$	2	3	7
	b.)	Write about Digital Signature Algorithm	4	2	8
		OR			
8.	a.)	Explain Elliptic Curve Encryption and Decryption	2	2	7
	b.)	Explain RabinElGamal Algorithm	2	2	8
		UNIT-5			
9.	a.)	Apply Diffie-Hellman algorithm to exchange keys securely	5	2	7

	b.)	With the help of neat diagram ,explain Kerberos action	5	2	8
		OR			
10.	a.)	Write about the PGP services    a)Authentication b)Confidentiality	5	1	8
	b.)	Explain public key cryptography standards	2	1	7

**[M19CST1110]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M.Tech I Semester (R19) Regular Examinations**  
**ADVANCED COMPUTER NETWORKS**  
**(Computer Science & Engineering)**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

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			<b>CO</b>	<b>KL</b>	<b>M</b>
<b>UNIT - I</b>					
1.	a).	Give the Design Issues of Network layer and Compare Virtual Circuit & Datagram Networks.	CO1,CO3	K1,K4	7
	b).	Discuss about Routing Algorithm and Differentiate Distance vector routing, Link state Routing.	CO1,CO3	K2,K4	8
<b>OR</b>					
2.	a).	Describe about Shortest Path Routing, flooding.	CO1,CO3	K2	7
	b).	Explain about Hierarchical Routing with example.	CO1,CO3	K2,K4	8
<b>UNIT - II</b>					
3.	a).	Describe Class-full Classification of IPV4	CO2	K2	8
	b).	Discuss Advantages of IPV6 over IPV4 and Describe the frame format of IPV6.	CO2	K2	7
<b>OR</b>					
4.	a).	Discuss the importance of Network address translation(NAT)	CO2	K2	7
	b).	Explain Sub-Netting in IPV4 with Examples.	CO2	K2,K4	8
<b>UNIT - III</b>					
5.	a).	Discuss about TCP Services, TCP header format.	CO3	K1	8
	b).	Describe Flow control, Error control in TCP Protocol	CO3	K2	7
<b>OR</b>					
6.	a).	Discuss about UDP Services, UDP Header Format.	CO3	K1	8
	b).	Describe Stream Control Transmission Protocol (SCTP).	CO3	K2	7
<b>UNIT - IV</b>					
7.	a).	Define congestion control? Discuss of congestion control in Transport layer.	CO4	K1,K2	8
	b).	Explain about Frame Relay.	CO4	K2	7
<b>OR</b>					

8.	a).	What are the characteristics of Quality of Service and demonstrate Techniques to Improve QOS.	CO4	K3	8
	b).	Discuss Emerging trends Computer Networks	CO1,CO4	K1	7
<b>UNIT - V</b>					
9.	a).	What is Domain name system? Describe about Namespace, Name servers.	C03	K1,k2	8
	b).	Discuss about HTTP protocol.	C03	K2	7
<b>OR</b>					
10.	a).	Discuss Email Services and architecture, message transfer, delivery	CO3	K2	8
	b).	Describe MIME (Multipurpose Internet Mail Extensions) message format.	CO3	K2	7

[M19CST1111]  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M.Tech I Semester (R19) Regular Examinations**  
**EMBEDDED COMPUTING**  
**(Computer Science & Engineering)**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

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			<b>CO</b>	<b>KL</b>	<b>M</b>
<b>UNIT - I</b>					
1.	a).	Mention some system calls in LINUX.	CO2	K1	7
	b).	Explain about BUSY BOX.	CO1	K2	8
<b>OR</b>					
2.	a).	What is a Thread? Briefly explain about multithreading.	CO2	K1	8
	b).	Explain memory allocation in LINUX OS.	CO1	K2	7
<b>UNIT - II</b>					
3.	a).	Differentiate static and dynamic linking.	CO2	K2	8
	b).	Describe about code optimization switches.	CO2	K2	7
<b>OR</b>					
4.	a).	Discuss about code profiling tools.	CO2	K2	7
	b).	Mention various C Libraries.	CO2	K1	8
<b>UNIT - III</b>					
5.	a).	Discuss about data transfer and control.	CO3	K2	7
	b).	Explain about audio signal processing.	CO3	K2	8
<b>OR</b>					
6.	a).	Explain GSM module interfacing with data processing and display.	CO3	K2	7
	b).	Compare and contrast sensors and actuators.	CO3	K4	8
<b>UNIT - IV</b>					
7.	a).	Illustrate TCP/IP protocol stack.	CO4	K4	8
	b).	Give various standards in IEEE 802.11	CO4	K2	7
<b>OR</b>					
8.	a).	Differentiate between Bluetooth and ZigBee.	CO4	K2	8
	b).	Write about various types of firewalls.	CO4	K1	7

<b>UNIT - V</b>					
9.	a).	Draw and explain IA32 instruction set architecture.	CO1	K4	7
	b).	List and analyze various debugging tools.	CO1	K4	8
<b>OR</b>					
10.	a).	What is Interrupt Latency? Mention the rules.	CO1	K1	7
	b).	Explain the mechanism to handle interrupts.	CO1	K2	8

[M19CST1112]  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M.Tech I Semester (R19) Regular Examinations**  
**PARALLEL COMPUTER ARCHITECTURE**  
**(Computer Science & Engineering)**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

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			CO	KL	M
<b>UNIT - I</b>					
1.	a).	Explain about trends in Integrated Circuits	1	2	7
	b).	Write about basic and Intermediate concepts of Pipelining	1	1	8
<b>OR</b>					
2.	a).	Explain about Quantative Principles f Computer Design	1	2	8
	b).	Discuss about Pipeline Hazards	1	2	7
<b>UNIT - II</b>					
3.	a).	Write about basic compiler techniques for exposing ILP	2	3	8
	b).	What are the limitations on ILP realizable processors	2	2	7
<b>OR</b>					
4.	a).	With suitable example explain dynamic scheduling algorithm	2	3	7
	b).	Explain exploiting using dynamic scheduling	2	3	8
<b>UNIT-III</b>					
5.	a).	Explain Vector architecture in detail.	2	3	7
	b).	Write about infrastructure and costs of warehouse scale computers	2	2	8
<b>OR</b>					
6.	a).	Explain about the performance of shared memory processors	2	3	7
	b).	Give the architecture of warehouse scale computers	2	2	8
<b>UNIT - IV</b>					
7.	a).	What are basic cache performance techniques . Explain.	2	3	8
	b).	Write about virtual memory	2	3	7
<b>OR</b>					
8.	a).	Writhe about any six advanced optimization techniques of cache performance	2	2	8
	b).	Explain the design of memory hierarchies	2	2	7
<b>UNIT - V</b>					

9.	a).	With suitable examples define real faults and failures	2	3	7
	b).	Write about SIMICS and INTEL software development tools	2	2	8
		<b>OR</b>			
10.	a).	Give the design and evaluation of an I/O system	2	2	7
	b).	Write about I/O performance and reliability measures	2	2	8

**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**[M19RD1101]**

**I M. Tech I Semester (R19) Regular Examinations**

**RESEARCH METHODOLOGY AND IPR**

**Common to CST,CS,PSA,IT & CAD**

**MODEL QUESTION PAPER**

**TIME: 3Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT.**

All questions carry equal marks.

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			CO	KL	M
		<b>UNIT-I</b>			
1.	a).	Write briefly about good Research criteria.	CO1	K2	8
	b).	What are the errors in selecting a research problem?	CO1	K2	7
		OR			
2.		Describe briefly the Research process with neat sketch.	CO1	K2	15
		<b>UNIT-II</b>			
3.	a).	Write briefly about Effective Literature studies approaches.	CO1	K2	8
	b).	Explain about Research ethics.	CO3	K2	7
		OR			
4.	a).	Write briefly about Effective technical writing.	CO2	K3	8
	b).	Explain about the Format of research proposal.	CO2	K3	7
		<b>UNIT-III</b>			
5.		Write about the various steps in acquisition of trademarks rights.	CO5	K2	15
		OR			
6.	a).	Write briefly about International cooperation on Intellectual Property.	CO5	K2	8
	b).	Explain the procedure for grants of patents.	CO5	K2	7
		<b>UNIT-IV</b>			
7.		Explain about patent information and databases.	CO5	K2	15
		OR			
8.	a).	Write briefly about scope of patent rights.	CO5	K2	8
	b).	Write briefly about Licensing and transfer of technology.	CO4	K2	7
		<b>UNIT-V</b>			
9.		Write briefly about Administration in patent system.	CO5	K2	15
		OR			
10.		Write briefly about New developments in IPR.	CO6	K2	15

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE LEVEL**

**M-MARKS**

[M19 CST 1201]  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech II Semester (R19) Regular Examinations**  
**ADVANCED ALGORITHMS**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

TIME: 3 Hrs.

Max. Marks: 75 M

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			CO	KL	M
<b>UNIT - I</b>					
1.	a).	Consider the following directed graph. There are a multiple shortest paths between vertices S and T. Which one will be reported by Dijkstra's shortest path algorithm? Write the sequence of vertices and cost of the shortest path from S to T. Assume that, in any iteration the shortest path to a vertex v is updated only when a strictly shorter path to v is discovered. <div style="text-align: center;"> </div>	1	4	8
	b).	Analyze the performance topological sorting algorithm with an example	1	4	7
<b>OR</b>					
2.	a).	Find the strongly connected components of each of these graphs. <div style="text-align: center;"> </div>	2	5	8
	b).	Discuss and illustrate amortized analysis with respect to time and space analysis of Algorithms	1	4	7
<b>UNIT - II</b>					
3.	a).	Classify characterization of maximum matching by augmenting paths	2	3	8
	b).	Define Maximum Matching in graphs and Analyze maximum matching in computing augmenting path.	2	3	7
<b>OR</b>					
4.	a).	Evaluate Edmond's Blossom algorithm in computing augmenting path.	1	3	7
	b).	Classify greedy method by taking suitable example to compute a maximum weight maximal independent set.	2	3	8

<b>UNIT - III</b>					
5.	a).	Analyze the maximum flow using Ford Flukerson Algorithm	2	4	8
	b).	Solve Edmond-Karp maximum-flow algorithm with example	2	3	7
<b>OR</b>					
6.	a).	Apply divide and conquer method to solve maximum sub array problem	2	3	8
	b).	Analyze max flow-mincut theorem with an example	1	4	7
<b>UNIT - IV</b>					
7.	a).	Apply Chinese remainder theorem, to the following equations: a = 2 (mod 5) b = 3 (mod 13) Generate solutions in the form of table	2	3	8
	b).	Distinguish polynomial multiplication and division	1	4	7
<b>OR</b>					
8.	a).	Identify Conversions between base-representation and modulo-representation	1	3	7
	b).	Evaluate Fast Fourier Transform algorithm with an example	3	5	8
<b>UNIT - V</b>					
9.	a).	Prove that clique problem is NP-complete.	3	4	7
	b).	Prove Travelling Salesman Problem as NP complete.	3	4	8
<b>OR</b>					
10.	a).	Prove that feedback edge set problem in NP-complete.	3	4	8
	b).	Compare polynomial multiplication and division	3	4	7

**M-MARKS**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE LEVEL**

**[M19CST1202]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**

**I M. Tech II Semester (R19) Regular Examinations**  
**MACHINE LEARNING**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**.  
 All questions carry equal marks.

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			M	CO	KL
UNIT-I					
1.	a)	Compare Structured and Unstructured, Forms of Learning.	8	CO1	L4
	b)	Explain about Productive use of Machine Learning	7	CO1	L4
OR					
2.	a)	Analyze various Applications in diverse fields	8	CO1	L4
	b)	Explain about Data Representation	7	CO1	L4
UNIT-II					
3.		Compare Metrics for assessing regression and classification.	15	CO2	L4
OR					
4.		Discuss about Computational Learning Theory and Occam's Razor Principle.	15	CO2	L5
UNIT-III					
5.	a)	Discuss about K-Nearest Neighbor Classifier.	8	CO3	L5
	b)	Compare Linear Regression and Logistic Regression.	7	CO3	L5
OR					
6.	a)	Explain about Fisher's Linear Discriminant.	8	CO3	L5
	b)	Explain about Minimum Description Length Principle.	7	CO3	L5
UNIT-IV					
7.	a)	Discuss about Regression by Support vector Machines	15	CO4	L6
	b)	Explain about Widrow-Hoff Learning Rule in Neural Networks.			
OR					
8.	a)	Explain about Neuron Models in Neural Networks.	8	CO4	L5
	b)	Discuss about Perceptron Algorithm in SVM.	7	CO4	L5
UNIT-V					
9.		Explain about Decision Tree Learning of Machine Learning.	15	CO5	L5
OR					
10.	a)	Explain about error back propagation algorithm.	8	CO5	L5
	b)	Discuss about Multilayer Perceptron Networks.	7	CO5	L5

**M-MARKS  
LEVEL**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE**

[M19CST 1203]

**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech II Semester (R19) Regular Examinations**  
**SOFT COMPUTING**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			CO	KL	M
<b>UNIT - I</b>					
1.	a).	Compare and contrast Human brain and Neural network	1	3	8
	b).	Analyze fuzzy set theory with example	1	4	7
OR					
2.	a).	List out different applications of Fuzzy logic concepts in Engineering problems	1	3	8
	b).	Classify the following- Fuzzy rules and Fuzzy Reasoning	1	4	7
<b>UNIT - II</b>					
3.	a).	Classify the limitations of Derivative-Free Optimization?	2	4	7
	b).	Analyze the method of steepest descent	2	3	8
OR					
4.	a).	Distinguish about downhill simplex search	2	4	7
	b).	Identify the features of Derivative based optimization	2	4	8
<b>UNIT - III</b>					
5.	a).	Identify the techniques for Heuristic Search and explain	3	3	8
	b).	Analyze predicate calculus algorithm	3	4	7
OR					
6.	a).	Identify the issues and acquisition of Rule based knowledge	3	3	8
	b).	Explain about heuristic classification state space search	3	3	7
<b>UNIT - IV</b>					
7.	a).	With help of the architecture analyze the Hybrid learning algorithm	4	4	8
	b).	Classify Learning methods that cross fertilize ANFIS and RDFN	4	4	7
OR					
8.	a).	Analyze the Coactive fuzzy Modeling	4	4	7
	b).	Classify the Neuro Fuzzy Inference systems	4	4	8
<b>UNIT - V</b>					
9.	a).	Analyze Automobile fuel efficiency prediction	5	4	7
	b).	Classify soft computing for color recipe prediction	5	4	8
OR					
10.	a).	Explain Inverse Kinematics Problems	5	3	8
	b).	Classify Printed character Recognition	5	4	7

**M-MARKS  
LEVEL**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE**

**[M19 CST 1204]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech II Semester (R19) Regular Examinations**  
**ADVANCED NETWORK PRINCIPLES AND PROTOCOLS**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			<b>CO</b>	<b>KL</b>	<b>M</b>
<b>UNIT - I</b>					
1.	a).	Analyze Topology switching architecture with neat diagram	1	3	8
	b).	Identify various classes of IEEE 802.X Standard Ethernet.	1	4	7
<b>OR</b>					
2.	a).	Compare ALOHA and CSMA/CD Protocols with an example?	2	4	8
	b).	List out various Applications of Networks	2	4	7
<b>UNIT - II</b>					
3.	a).	Identify the different features in Transmission control protocol	2	4	7
	b).	Analyze Flow control and Congestion control in TCP	2	3	8
<b>OR</b>					
4.	a).	Analyze Spanning tree protocol with neat diagram	1	4	7
	b).	Distinguish Input and output modules with example	2	4	8
<b>UNIT - III</b>					
5.	a).	Compare ARP with RARP with neat diagram	2	3	8
	b).	Identify Various issues addressed by transport layer protocol	2	4	7
<b>OR</b>					
6.	a).	Identify the operations of Dynamic Host Configuration Protocol	2	3	8
	b).	Classify the header formats for the three major protocols in the TCP/IP protocol suite.	1	4	7
<b>UNIT - IV</b>					
7.	a).	Compare Transmission Control Protocol with User Datagram Protocol	2	4	8
	b).	Identify the User Datagram Protocol services.	3	4	7
<b>OR</b>					
8.	a).	List out various typical applications of User Datagram Protocol	3	4	7
	b).	Identify Various issues addressed by transport layer protocol	3	3	8
<b>UNIT - V</b>					
9.	a).	Distinguish about Simple Network Management Protocol with neat diagram	3	4	7
	b).	Identify the operations of Bootstrap Network Time Protocol	1	3	8
<b>OR</b>					
10.	a).	Identify the characteristics of Simple Mail Transfer Protocol	3	3	8
	b).	Distinguish about Trivial File Transfer Protocol	3	4	7

**M-MARKS**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE**

**[M19 CST 1205]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech II Semester (R19) Regular Examinations**  
**INTERNET OF THINGS**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			<b>CO</b>	<b>KL</b>	<b>M</b>
<b>UNIT - I</b>					
1.	a).	What are the enabling technologies in IoT?	1	2	7
	b).	Describe the IoT world forum architecture with a neat sketch.	2	4	8
<b>OR</b>					
2.	a).	Write short notes about the following. 1. Fog Computing. 2. Edge Computing. 3. Sensors.	1	2	7
	b).	Define functional stack. Explore the core IoT functional stack	2	4	8
<b>UNIT - II</b>					
3.	a).	Illustrate about the physical and MAC layers in IEEE 802.15.4	2	4	8
	b).	Explain about MQTT protocol with neat sketch.	2	4	7
<b>OR</b>					
4.	a).	Define RPL and explain its functionality.	2	4	7
	b).	How communication technology 6LoWPAN is helping the LLN. Explain?	2	4	8
<b>UNIT - III</b>					
5.	a).	Explain about ARDUINO Board in detail	2	6	8
	b).	Explain about cloud computing paradigm for Data Collection, Storage and computing.	4	3	7
<b>OR</b>					
6.	a).	Explain about raspberry pi and its interfaces in detail.	3	6	7
	b).	Discuss about data Acquiring and storage, organizing of data in IoT.	4	3	8
<b>UNIT - IV</b>					
7.	a).	Explain about the ARM cortex-A class processor.	2	3	7
	b).	Define BLE. Explain in detail about BLE	1	4	8
<b>OR</b>					
8.	a).	Explain about the mbed platform in detail.	3	6	7
	b).	Define the building blocks of embedded system by using MCU.	3	6	8
<b>UNIT - V</b>					
9.	a).	What is IBM Watson explain it in detail.	2	4	7
	b).	Explore the case study on Smart Lightening.	5	4	8
<b>OR</b>					
10.	a).	Explain about CPwE in details.	2	4	7
	b).	How can we help traffic by using the IoT devices? Define them using a case study.	5	4	8

**M-MARKS**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE LEVEL**

**[M19CST1206]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**

**I M. Tech II Semester (R19) Regular Examinations**  
**OPEN SOURCE PROGRAMMING**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**.  
 All questions carry equal marks.

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			M	CO	KL
UNIT-I					
1.	a)	Explain the process management in LINUX with suitable system call?	8	CO1	L3
	b)	Discuss the need and advantages of open source software	7	CO1	L3
OR					
2.	a)	What is open source software? Briefly explain its applications	8	CO1	L3
	b)	Describe in detail about the architecture of LINUX.	7	CO1	L3
UNIT-II					
3.	a)	Write a PHP script to display the current time of day at the server with in a webpage.	8	CO1	L4
	b)	Explain various program control statements in PHP with suitable examples.	7	CO1	L3
OR					
4.	a)	Explain different types of arrays in PHP with suitable examples.	8	CO1	L3
	b)	Write PHP routines which validate all user credentials entered into a login page	7	CO1	L3
UNIT-III					
5.		Discuss about Form based Authentication and How do you Protect the data from the web.	15	CO2	L4
OR					
6.		Discuss in detail about Threats and Vulnerabilities associated with Open Source Programming	15	CO2	L4
UNIT-IV					
7.	a)	Explain Perl Parsing Rules.	8	CO1	L4
	b)	Explain File handling in Perl.	7	CO1	L4
OR					
8.	a)	Write about various flow control statements in python.	8	CO1	L4
	b)	Write a Python program to print Fibonacci series	7	CO1	L4
UNIT-V					
9.		Explain about Security Types used in Web Applications	15	CO3	L4
OR					
10.		Discuss in detail about vulnerable CGI Scripts	15	CO3	L4

**M-MARKS  
LEVEL**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE**

**[M19CST1207]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech II Semester (R19) Regular Examinations**  
**PATTERN RECOGNITION**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**.  
 All questions carry equal marks.

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			M	CO	KL
		<b>UNIT-I</b>			
1.	a)	Explain forward and backward algorithm for Hidden Markov Model (HMM).	8	CO1	L4
	b)	Discuss Fundamental problems in Pattern Recognition	7	CO1	L3
		<b>OR</b>			
2.	a)	Explain the term pattern recognition. Define with an example pattern recognition design principle.	8	CO1	L4
	b)	Write about Minimum distance pattern Classification	7	CO1	L3
		<b>UNIT-II</b>			
3.	a)	Explain the uni-variate and multivariate normal density functions with examples.	8	CO2	L4
	b)	Write a short note on Minimum error rate classification.	7	CO2	L3
		<b>OR</b>			
4.	a)	Write a short note on General theory of Bayesian Parameter estimation.	8	CO2	L3
	b)	Discuss about Statistical Decision Making	7	CO2	L3
		<b>UNIT-III</b>			
5.	a)	Discuss Hierarchical clustering.	8	CO3	L3
	b)	Define discriminant functions.Explain linear discriminant function.	7	CO3	L4
		<b>OR</b>			
6.	a)	Differentiate Classification and Clustering	8	CO3	L5
	b)	Discuss in detail about K-Means Algorithm	7	CO3	L3
		<b>UNIT-IV</b>			
7.		Explain the concept of feature extraction in pattern recognition system with examples.	15	CO4	L4
		<b>OR</b>			
8.	a)	Discuss the general principal of Maximum likelihood estimation.	8	CO4	L3
	b)	Explain about Binary Feature Selection	7	CO4	L4
		<b>UNIT-V</b>			
9.		Explain about Application of pattern recognition techniques in bio-metrics	15	CO5	L4
		<b>OR</b>			
10.		Discuss about Syntactic Pattern Recognition Techniques	15	CO5	L4

**M-MARKS  
LEVEL**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE**

**[M19 CST 1208]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech II Semester (R19) Regular Examinations**  
**NATURAL LANGUAGE PROCESSING**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**  
 All questions carry equal marks

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			CO	KL	M
<b>UNIT - I</b>					
1.	a).	Identify the NLP Tasks in Syntax, Semantics and pragmatics	1	3	8
	b).	Distinguish the applications like information extraction, question answering and machine translation	1	4	7
OR					
2.	a).	Identify the role of machine learning in Natural Language Processing	1	3	8
	b).	Classify the problem of ambiguity with example	1	4	7
<b>UNIT - II</b>					
3.	a).	Distinguish the role of language models in N-gram Language	2	4	7
	b).	Classify Hidden Markov Models with an example	4	4	8
4.	a).	Compare the estimating parameters and smoothing	2	3	7
	b).	Evaluate any one of the language model with example	2	4	8
<b>UNIT - III</b>					
5.	a).	Explain about parsing for context free grammars (CFGs)	5	3	8
	b).	Describe logical form as an intermediate representation in natural language processing with diagram	3	3	7
OR					
6.	a).	Distinguish Grammar formalisms and tree banks	3	4	8
	b).	Describe lexical probabilities and techniques of obtaining them in natural language processing	3	3	7
<b>UNIT - IV</b>					
7.	a).	Identify the uses of semantic web ontology	4	3	8
	b).	Classify word sense disambiguation in natural language processing	4	4	7
8.	a).	Distinguish lexical resource wordnet used in natural language processing	4	4	7
	b).	Describe Probabilistic parsing in natural language processing	4	3	8
<b>UNIT - V</b>					
9.	a).	Explain machine translation system evaluation tools	5	3	7
	b).	How is natural language processing useful in an automatic text clustering problem	5	3	8
OR					
10.	a).	Describe automatic machine translation problem	5	3	8
	b).	Explain Compositional semantic with example	4	3	7

**M-MARKS  
LEVEL**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE**

**[M19CST1209]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech II Semester (R19) Regular Examinations**  
**FULL STACK TECHNOLOGIES**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**.

All questions carry equal marks.

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			M	CO	KL
UNIT-I					
1.	a).	Compare HTML and XHTML.	8	CO1	L2
	b).	Analyze HTTP and WWW	7	CO1	L4
OR					
2.		Design a form using HTML. (Use minimum 15 Different tags)	15	CO1	L6
UNIT-II					
3.	a).	Analyze Style Rule Cascading and Inheritance in CSS.	8	CO2	L4
	b).	Explain about Boot strap in CSS3.0	7	CO2	L2
OR					
4.	a).	Illustrate JScripts objects.	8	CO2	L2
	b).	Analyze Control Statements in Javascript.	7	CO2	L4
UNIT-III					
5.		Design a PHP page to insert and retrieve data from MySQL.	15	CO3	L6
OR					
6.	a).	Explain the steps for accessing MYSQL using PHP	8	CO3	L2
	b).	Demonstrate how authentication is done in PHP	7	CO3	L2
UNIT-IV					
7.	a).	Model Creating First Controller using AngularJS	8	CO3	L3
	b).	Explain about Unit Testing in AngularJS.	7	CO3	L2
OR					
8.	a).	Explain about AngularJS Modules.	8	CO4	L2
	b).	Explain about Error Handling with Forms.	7	CO4	L2
UNIT-V					
9.	a).	Explain about React Components.	8	CO4	L2
	b).	Explain about ReactDOM.	7	CO4	L2
OR					
10.	a).	Compare Obstacles and Roadblocks.	8	CO4	L2
	b).	Explain about DOM Rendering.	7	CO4	L2

**M-MARKS**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE LEVEL**

**[M19CST1210]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**I M. Tech II Semester (R19) Regular Examinations**  
**PARALLEL ALGORITHMS**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**.  
 All questions carry equal marks.

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			M	CO	KL
UNIT-I					
1.	a)	What is Amdahl's Effect? discuss Amdahl's Law	8	CO1	L4
	b)	Contrast Pipelining and Parallelism	7	CO1	L5
OR					
2.	a)	Discuss about Data Parallelism and Control Parallelism	8	CO1	L4
	b)	Explain models of computation in brief	7	CO1	L4
UNIT-II					
3.	a)	Explain Organizational features of Processor Arrays	8	CO2	L4
	b)	Discuss about Coffman-graham Scheduling Algorithm	7	CO2	L3
OR					
4.	a)	Explain about Multiprocessors and Multi Computers.	8	CO2	L3
	b)	Discuss about Balancing List Scheduling Algorithm	7	CO2	L3
UNIT-III					
5.	a)	Explain Hyper Cube Architecture	8	CO3	L3
	b)	Explain the algorithm for Matrix Multiplication using SIMD Model	7	CO3	L4
OR					
6.	a)	Discuss about Fast Fourier Transform Algorithms	8	CO3	L5
	b)	Explain about solving linear file system of equations	7	CO3	L4
UNIT-IV					
7.	a)	Explain odd even Transposition sort.	8	CO4	L4
	b)	Describe Multiprocess oriented Parallel Quicksort Algorithm	7	CO4	L3
OR					
8.	a)	Discuss about Ellis Algorithm	8	CO4	L3
	b)	Explain about 2D Mesh Processor	7	CO4	L4
UNIT-V					
9.		Explain about a)Distributed Tree Search for parallel alpha beta search b)Sequential alpha beta search	15	CO5	L4
OR					
10.		What is combinatorial search problem? How a search problem can be represented by tree ? Describe a combinatorial searching problem solving methodology that can be represented by tree. Also Explain Depth and Breadth First search algorithm with an example	15	CO5	L4

**M-MARKS**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE LEVEL**

**[M19CST1211]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**

**I M. Tech II Semester (R19) Regular Examinations**  
**OBJECT ORIENTED SOFTWARE ENGINEERING**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**.  
 All questions carry equal marks.

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			CO	KL	M
<b>UNIT-I</b>					
1.	a)	Describe about software quality attributes	CO1	L3	8
	b)	Explain about Software Engineering concepts	CO1	L4	7
<b>OR</b>					
2.	a)	What is Software Engineering? List SE Activities	CO1	L3	7
	b)	For a construction company software is to be developed with following specifications-company takes many projects and each project is supervised by project manager assigned by CEO of the company. Record related to start of project, its completion is maintained. Under each PM there is a team of people of different category like designer, plumber, electrician...etc. Each project is marketed by team of marketing Executives. Draw Class and Use case Diagram for it.	CO1	L4	8
<b>UNIT-II</b>					
3.	a)	Write about various techniques for gathering and Analyzing Requirements	CO2	L3	7
	b)	What is Requirement? Explain about Types of Requirements.	CO2	L4	8
<b>OR</b>					
4.	a)	What is Modelling and Describe the basic concepts of modeling	CO2	L3	8
	b)	What is analysis and explain concepts of analysis in OO Software Engineering?	CO2	L4	7
<b>UNIT-III</b>					
5.		Explain cohesion and coupling, How are the concepts of coupling and cohesion useful in arriving at good software design?	CO3	L4	15
<b>OR</b>					
6.		Write about the Design principles for good design	CO3	L4	15
<b>UNIT-IV</b>					
7.	a)	What is software quality assurance? Explain different quality metrics	CO4	L4	8
	b)	What is the need of software maintenance? Explain the types of software maintenance	CO4	L4	7
<b>OR</b>					
8.	a)	Write short notes on Software Configuration Management	CO4	L3	8
	b)	Write short notes on Project scheduling and tracking	CO4	L3	7
<b>UNIT-V</b>					
9.	a)	With a neat diagram explain Spiral Model.	CO5	L4	8

	b)	Explain about waterfall model.	CO5	L4	7
		OR			
10.	a)	Explain CMM levels?	CO5	L4	7
	b)	For attendance management system prepare SRS documents with respect to their Use Case	CO5	L3	8

**M-MARKS**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE LEVEL**

**[M19CST1212]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**

**I M. Tech II Semester (R19) Regular Examinations**  
**DISTRIBUTED DATABASES**  
**Department of Computer Science and Engineering**  
**MODEL QUESTION PAPER**

**TIME: 3Hrs.**

**Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT**.  
 All questions carry equal marks.

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			M	CO	KL
UNIT-I					
1.	a)	Write about data fragmentation techniques for DDBMS	8	CO1	K1
	b)	Describe one method for designing DDBMS	7	CO1	K1
OR					
2.	a)	Write about Cluster federated DDBMS architecture	8	CO1	K1
	b)	Write about Client Server architecture	7	CO1	K1
UNIT-II					
3.	a)	Explain about query processing problem	8	CO3	K3
	b)	Describe Transaction Management	7	CO3	K3
OR					
4.	a)	Explain about characterization of query processors	8	CO3	K3
	b)	Distinguish taxonomy of concurrency control Mechanisma	7	CO3	K4
UNIT-III					
5.	a)	Write about various object models	8	CO2	K1
	b)	Describe object distribution design	7	CO2	K1
OR					
6.	a)	Write about architectural issues in object database management	8	CO2	K1
	b)	Explain distributed object storage	7	CO2	K1
UNIT-IV					
7.		. Distinguish database interoperability in CORBA, DCOM and JAVA RMI	15	CO4	K4
OR					
8.	a)	Explain about workflow management	8	CO4	K3
	b)	Compare the technologies in distributed object based DBMS	7		
UNIT-V					
9.		In detail explain Spatial and Web databases	15	CO4	K4
OR					
10.		Give the advantages of Mobile databases	15	CO4	K3

**M-MARKS  
LEVEL**

**CO-COURSE OUTCOME**

**KL-KNOWLEDGE**

[M19CST2101]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

II M. Tech III Semester (R19) Regular Examinations

DEEP LEARNING

Department of Computer Science and Engineering

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 75 M

Answer ONE Question from EACH UNIT.

All questions carry equal marks.

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			M	CO	KL
		UNIT-I			
1.	a)	Analyze various paradigms of learning problems,perspectives and issues in deep learning	8	CO1	L4
	b)	Explain aboutArtificial Neural Network	7	CO1	L4
		OR			
2.	a)	Analyze various paradigms of learning problems	8	CO1	L4
	b)	Explain in detail about activation function	7	CO1	L4
		UNIT-II			
3.		Explain about risk minimization, loss function, back propagation.	15	CO2	L4
		OR			
4.		Discuss about greedy layer wise training	15	CO2	L5
		UNIT-III			
5.	a)	Discuss about deep feed forward network	8	CO3	L5
	b)	Discuss about training deep models	7	CO3	L5
		OR			
6.	a)	Explain about Convolution Neural Network.	8	CO3	L5
	b)	Explain about deep beliefnetwork.	7	CO3	L5
		UNIT-IV			
7.	a)	Discuss aboutHopfield Net.	15	CO4	L6
	b)	Explain about Boltzmann machine.			
		OR			
8.	a)	Explain about Sigmoid net.	8	CO4	L5
	b)	Discuss about Auto encoders.	7	CO4	L5
		UNIT-V			
9.		Explain about computer vision.	15	CO5	L5
		OR			
10.	a)	Explain about natural language processing.	8	CO5	L5
	b)	Discuss about various deep learning tools.	7	CO5	L5

M-MARKS  
LEVEL

CO-COURSE OUTCOME

KL-KNOWLEDGE

[M19CST2102]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

II M. Tech I Semester (R19) Regular Examinations

ETHICAL HACKING

Department of Computer Science and Engineering

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 75 M

Answer ONE Question from EACH UNIT.

All questions carry equal marks.

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			M	CO	KL
		UNIT-I			
1.	a)	Define ethical hacking. List its limitations	8	CO1	L3
	b)	Illustrate about foundation for ethical hacking.	7	CO1	L4
		OR			
2		Explain Hacking methodologies in detail	15	CO1	L3
		UNIT-II			
3.		Discuss in detail about Advanced Windows Hacking	15	CO1	L3
		OR			
4.	a)	How the application is hacked.	8	CO1	L3
	b)	Discuss the Operating System Hacking.	7	CO1	L3
		UNIT-III			
5.		How will you crack the password. Elaborate the steps in detail	15	CO1	L4
		OR			
6.		Discuss in detail about i) Cracking Login Password ii) Cracking BIOS password iii) Cracking Unix Password	15	CO1	L4
		UNIT-IV			
7.	a)	Explain the functions associated with functions in PERL	8	CO2	L4
	b)	Differentiate Chomp() and Chop()	7	CO2	L5
		OR			
8.	a)	Discuss about Conditional statements and Looping Statements in PERL	8	CO2	L3
	b)	Write about File handling in PERL	7	CO2	L3
		UNIT-V			
9.		Discuss the procedure for identifying unknown device drivers	15	CO3	L3
		OR			
10.	a)	Explain about Creating new virus strains	8	CO3	L4
	b)	Discuss about working of virus	7	CO3	L3

M-MARKS

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL