

**[B19CS2101]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE(A)**  
**II B. Tech I Semester (R19)**  
**MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE**  
**Computer Science and Engineering**  
**MODEL QUESTION PAPER**

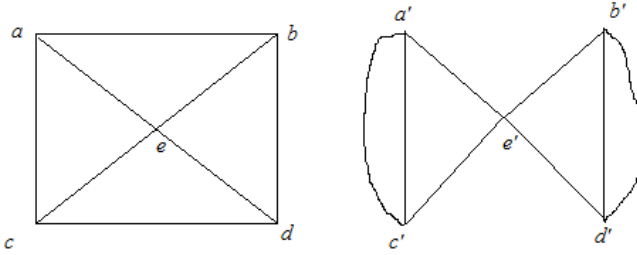
**TIME : 3 Hrs.**

**Max. Marks: 75 M**

Answer **ALL Questions**. All questions carry equal marks.

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Q.No.	Questions	CO	KL	M
1.a)	Prove that $\{(p \vee q) \rightarrow r\} \wedge (\neg p) \rightarrow (q \rightarrow r)$ is a tautology	CO1	K2	7
b)	Verify that the following argument is valid by using the rules of inference If Clifton does not live in France, then he does not speak French. Clifton does not drive a Datsun If Clifton lives in France, then he rides a bicycle Either Clifton speaks French, or he drives a Datsun Hence, Clifton rides a bicycle	CO1	K2	8
(OR)				
2.a)	Verify that the following argument is valid by using the rules of inference, quantifiers. Babies are illogical. Nobody is despised who can manage a crocodile. Illogical people are despised. Hence, babies cannot manage crocodiles.	CO1	K2	8
b)	Determine the PDNF and PCNF of $p \vee \neg q$	CO1	K2	7
3.a)	Determine the number of ways of arranging 6 boys and 6 girls in a row. In how many of these arrangements i) All girls will be together. ii) No two girls will be together. iii) Boys and girls come alternatively.	CO2	K2	7
b)	i) Determine the term independent of $x$ in the expansion of $(x^2 + \frac{1}{x})^{12}$ ii) Determine the coefficient of $x^5 y^{10} z^5 w^5$ in the expansion $(x + 7y + 3z + w)^{25}$	CO2	K3	8
(OR)				
4.a)	A cricket team of 11 is to be selected out of 14 players of whom 5 are bowlers. Find the number of ways in which this can be done so as to include at least 3 bowlers.	CO2	K2	8
b)	Determine the number of integers between 1 and 250 which are divisible by any of the integers 2, 3, 5 or 7.	CO2	K3	7
5.a)	Let R denote a relation on the set of ordered pairs of positive integers by $(x, y)R(u, v)$ if and only if $xv = yu$ . Then show that 'R' is an equivalence relation.	CO3	K2	8
b)	Define Hasse diagram. Draw the Hasse diagram for the Poset $(P(S), \subseteq)$ where $S = \{1, 2, 3\}$	CO3	K2	7
(OR)				
6.a)	Let $(S, *)$ be a given semi group. There exists a homomorphism	CO4	K2	7

	$g: S \rightarrow S^S$ where $(S^S, \circ)$ is a semi group of functions from $S \rightarrow S$ under the operation of (left) composition.			
b)	Show that the fourth roots of unity forms a group with respect to multiplication of complex numbers.	CO4	K2	8
7.a)	How many integral solutions are there to $x_1 + x_2 + x_3 + x_4 + x_5 = 20$ where $x_1 \geq 3, x_2 \geq 2, x_3 \geq 4, x_4 \geq 6$ and $x_5 \geq 0$ .	CO5	K2	8
b)	Solve the recurrence relation $S_n - 7S_{n-1} + 10S_{n-2} = 7.3^n$ for $n \geq 2$ .	CO5	K3	7
(OR)				
8.a)	Determine the coefficient of $x^{14}$ in $(1+x+x^2+x^3)^{10}$	CO5	K2	8
b)	Solve the recurrence relation $a_n - 5a_{n-1} + 6a_{n-2} = 0, n \geq 2$ by using generating functions	CO5	K3	7
9.a)	Define isomorphism of graphs. Verify the following graphs are isomorphic or not.  	CO6	K2	8
b)	State and Prove Euler's formula for planar graphs.	CO6	K3	7
(OR)				
10.a)	Show that a tree with 'n' elements has exactly 'n-1' edges.	CO6	K2	7
b)	Explain Kruskal's algorithm for minimal spanning tree with suitable example.	CO6	K3	8

**[B19CS2102]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**II B. Tech I Semester (R19) Regular Examinations**  
**SOFTWARE ENGINEERING**  
**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).	Explain about Nature of the software	C01	K2	7
	b).	Explain about Evolutionary process models	C01	K2	8
<b>OR</b>					
2.	a).	Explain about Software Myths	C01	K2	7
	b).	Explain about Agile Process	C01	K2	8
<b>UNIT - II</b>					
3.	a).	Identify the Need of SRS in Software Requirements	C02	K3	7
	b).	Discuss the two key elements of a C&C architecture view of a software system with Examples	C02	K2	8
<b>OR</b>					
4.	a).	Construct Data Flow Diagrams in Software Requirements	C02	K3	7
	b).	Discuss Architecture Styles for C&C View with Examples	C02	K2	8
<b>UNIT - III</b>					
5.	a).	Illustrate Design Principles of Function Oriented Design	C03	K3	8
	b).	Draw Sequence and Collaboration Diagrams with examples	C03	K3	7
<b>OR</b>					
6.	a).	Illustrate Structure Charts in Function Oriented Design	C03	K3	7
	b).	Discuss Object Oriented Concepts in Object Oriented Design	C03	K2	8
<b>UNIT - IV</b>					
7.	a).	Discuss about Basis path testing	C04	K2	8
	b).	Illustrate Object Oriented Testing strategies	C04	K3	7
<b>OR</b>					
8.	a).	Discuss about Basis path testing in Black-Box testing	C04	K2	8
	b).	Explain about Testing methods applicable at class level	C04	K2	7
<b>UNIT - V</b>					
9.	a).	Explain Quality Plan in Software Configuration Management Plan	C05	K2	8
	b).	Illustrate Uncertainties in Effort Estimation Software Project Planning	C05	K3	7
<b>OR</b>					
10.	a).	Discuss about Risk Assessment in Software Configuration Management Plan	C05	K2	8
	b).	Explain about COCOMO Model in Software Project Planning	C05	K2	7

**[B 19 CS 2103]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**II B. Tech I Semester (R19) Regular Examinations**  
**OBJECT ORIENTED PROGRAMMING**  
**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).	Discuss about principles and benefits of OOPS.	CO1	K2	7
	b).	Demonstrate operator overloading through Unary operators.	CO1	K2	8
<b>OR</b>					
2.	a).	Summarize operator precedence with a sample expression.	CO1	K2	7
	b).	What is the need of a. Friend Function b. Inline Function	CO1	K2	8
<b>UNIT - II</b>					
3.	a).	Explain Inheritance. Write a Program for Hierarchical Inheritance.	CO2	K3	7
	b).	Illustrate Virtual Base class with an example.	CO2	K3	8
<b>OR</b>					
4.	a).	Write a program to Manipulate String Objects and perform Relational Operations.	CO2	K3	8
	b).	Interpret Virtual function with an example.	CO2	K3	7
<b>UNIT - III</b>					
5.	a).	Explain Generic Template and Functon template with an example.	CO3	K3	7
	b).	Compare and contrast formatted and unformatted i/o functions.	CO3	K3	8
<b>OR</b>					
6.	a).	Make use of different types of exceptions and write an example for each.	CO3	K3	8
	b).	Write a program to calculate the total length of the content in the file.	CO3	K3	7
<b>UNIT - IV</b>					
7.	a).	Illustrate Interface with an example.	CO4	K2	7
	b).	How can multiple packages get imported? Show it with an example.	CO4	K2	8
<b>OR</b>					
8.	a).	Write short notes on Method Overloading and Method Overriding.	CO4	K2	8
	b).	Differentiate between throw and throws with an example.	CO4	K2	7
<b>UNIT - V</b>					
9.	a).	Determine the importance of multithreading with an example.	CO5	K2	8
	b).	Illustrate Runnable interface with an example.	CO5	K3	7
<b>OR</b>					
10.	a).	Explain life cycle of a thread.	CO5	K2	8
	b).	Write a program to copy the contents of one file to another file using Byte Oriented class.	CO5	K3	7

[B19 CS 2104]  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**II B. Tech I Semester (R19) Regular Examinations**  
**ADVANCED DATA STRUCTURES**  
**Computer Science and Engineering**  
**MODEL QUESTION**  
**PAPER**

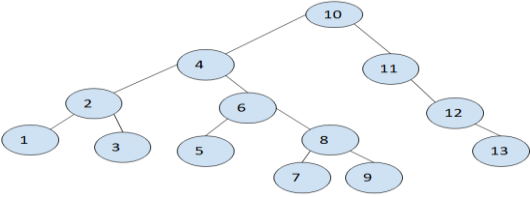
**TIME: 3 Hrs.**

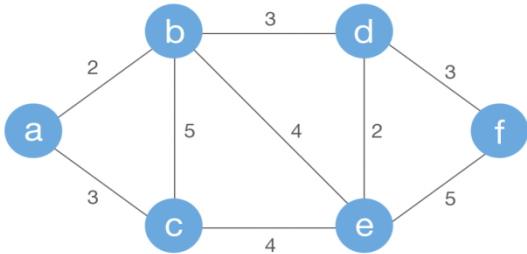
**Max. Marks: 75 M**

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 difference between Linked List and Arrays.	C1	K2	7
	b)	Write functions of Linked Queue.	C1	K3	8
<b>OR</b>					
2.	a)	Write functions to insert the following elements into doubly linked list such that after insertion the elements in the list must be in ascending order. 67, 12, 90, 34, 49, 9, 83, 25, 57 and 71.	C1	K3	8
	b)	Explain Circular Linked List.	C1	K2	7
<b>UNIT - II</b>					
3.	a)	Construct a Binary Tree from given two traversals: Inorder: 30,20,35,40,45,50,55,60,70 Postorder: 20,35,30,45,40,55,70,60,50	C2	K3	8
	b)	Explain the process of constructing Threaded Binary Tree using Linked List.	C2	K2	7
<b>OR</b>					
4.	a)	List different ways to represent Priority Queue and write routines for Binary Heap operations..	C2	K3	8
	b)	Explain the process of heap sort with the following elements. 9, 6, 10, 15, 1, 12, 5, 2	C2	K2	7
<b>UNIT - III</b>					
5.	a)	Show the result of accessing the keys 3,9,1,5 in order and deleting the key 6 in the following splay tree. 	C2	K3	8
	b)	Explain the LLr, LRr, LLb, LRb imbalances in Red-Black Tree	C2	K2	7

		<b>OR</b>			
6.	a) .	Specify the structure properties of B-Tree and construct a B-Tree of order 3 with the following Elements 5, 3, 21, 9, 1, 13, 2, 7, 10, 12, 4, 8.	C2	K3	8
	b) .	Explain the rotations involved while constructing the AVL Tree with the following elements 45,63,9,19,27,18,108,99,81,12.	C2	K3	7
		<b>UNIT - IV</b>			
7.	a) .	Explain Graph Representations. What are the advantages of adjacency list representation over adjacency matrix representation of a graph?	C3	K2	7
	b) .	Illustrate DFS and BFS Traversal of a Graph	C3	K2	8
		<b>OR</b>			
8.	a) .	Apply Prim's algorithm on the following Graph to determine the minimum spanning tree.  	C3	K3	8
	b) .	How to identify Strong components in a directed graph by applying DFS algorithm.	C3	K3	7
		<b>UNIT - V</b>			
9.	a) .	When Collision will occur? Construct Open Addressing Hash Table for the following data. 25 , 18 ,79 ,48 ,35 ,66 ,12 ,42	C4	K3	8
	b) .	Illustrate Extendible Hashing.	C4	K2	7
		<b>OR</b>			
10.	a) .	Write a program to Rabin Karp pattern matching algorithm.	C5	K3	8
	b) .	Illustrate Knuth Morris Pratt(KMP) algorithm.	C5	K2	7

[B19 CS 2105]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

**II B.TECH I Semester (R19) Regular Examinations**

**COMPUTER ORGANIZATION**

**Computer Science and Engineering**

**MODEL QUESTION PAPER**

**Time: 3 hours**

**Max. Marks:75**

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

All questions carry equal marks.

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			CO	KL	M
		UNIT--I			
1	a)	Differentiate between Von Neumann and Harvard Architecture	CO1	K4	7
	b)	Explain different arithmetic operations on floating point numbers	CO1	K2	8
		(OR)			
2	a)	Discuss three representations of Signed integers with suitable examples.	CO1	K2	7
	b)	Describe the different types of computers.	CO1	K2	8
		UNIT--II			
3	a)	Explain about the Instruction cycle.	CO1	K2	7
	b)	What do you mean by addressing mode? Explain the following addressing modes with examples. i) Index addressing mode ii) Relative addressing mode	CO1	K2	8
		(OR)			
4	a)	Write a program to evaluate the arithmetic statement using different instruction formats $Y=(a+b) * (c+d)$	CO1	K3	7
	b)	Explain various types of interrupts in detail	CO1	K2	8
		UNIT-III			
5	a)	Explain general register organization	CO2	K2	7
	b)	Explain the design of control unit	CO2	K2	8
		(OR)			
6	a)	Explain in detail about timing and control	CO2	K2	7
	b)	Illustrate the micro-programmed control unit.	CO2	K2	8
		UNIT—IV			
7	a)	What is a mapping function? What are the ways the cache can be mapped? Explain in detail.	CO2	K2	7
	b)	Draw a neat block diagram of memory hierarchy in a computer system. Compare the parameters size, speed and cost per bit in the hierarchy.	CO2	K4	8
		(OR)			

8	a)	With a neat sketch explain the working principle of DMA	C02	K2	7
	b)	Discuss about handshaking technique in asynchronous data transfer	C02	K2	8
		UNIT--V			
9	a)	What is multiprocessor system? Explain the advantages of multi processors over uniprocessors	C03	K2	7
	b)	What is parallel processing? Explain any parallel processing mechanism.	C03	K2	8
		(OR)			
10	a)	Explain the interconnection structure for multiprocessor systems	C03	K2	7
	b)	Explain the instruction pipeline processing in RISC architecture.	C03	K2	8



**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A):: BHIMAVARAM**

**Code: B19 BS2202**

**II B. Tech II Semester (R19)**

**PROBABILITY AND STATISTICS**

**MODEL QUESTION PAPER**

**(Common to CSE & IT)**

**TIME: 3 Hrs.**

**Max. Marks: 75 M**

Answer **All** Questions

All questions carry equal marks

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Q.No	Questions	CO	KL	M																		
1.a)	Explain a. Correlation and types of correlation b. Pearson's correlation coefficient and write its properties	CO1	K2	7																		
b)	Determine the regression lines of y on x and x on y for the following data <table border="1" style="margin-left: 20px;"> <tr> <td>X</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>Y</td> <td>15</td> <td>17</td> <td>14</td> <td>18</td> <td>16</td> <td>15</td> </tr> </table>	X	1	2	3	4	5	6	Y	15	17	14	18	16	15	CO1	K3	8				
X	1	2	3	4	5	6																
Y	15	17	14	18	16	15																
(OR)																						
2.a)	Explain the methods in primary and secondary data.	CO1	K2	7																		
b)	Determine a 2 <sup>nd</sup> degree regressed polynomial for the following data <table border="1" style="margin-left: 20px;"> <tr> <td>x</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>y</td> <td>1</td> <td>1.5</td> <td>2.6</td> <td>4.2</td> <td>6.8</td> </tr> </table>	x	0	1	2	3	4	y	1	1.5	2.6	4.2	6.8	CO1	K3	8						
x	0	1	2	3	4																	
y	1	1.5	2.6	4.2	6.8																	
3.a)	Define distribution function and write its properties.	CO2	K1	7																		
b)	A random variable X has the following probability distribution. <table border="1" style="margin-left: 20px;"> <tr> <td>x</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>f</td> <td>k</td> <td>2k</td> <td>3k</td> <td>4k</td> <td>5k</td> <td>6k</td> <td>7k</td> <td>8k</td> </tr> </table> Determine (i) the Value of K (ii) P(x≤2) (iii) P(2 ≤ x ≤ 5)	x	1	2	3	4	5	6	7	8	f	k	2k	3k	4k	5k	6k	7k	8k	CO2	K3	8
x	1	2	3	4	5	6	7	8														
f	k	2k	3k	4k	5k	6k	7k	8k														
(OR)																						
4. a)	Define moment generating function and write its properties	C02	K1	7																		
b)	A random variable X has the probability density function given by $f(x) = \begin{cases} x & \text{if } 0 \leq x < 1 \\ 2 - x & \text{if } 1 \leq x < 2 \\ 0 & \text{elsewhere} \end{cases}$ Determine E(X) and V(X).	C02	K2	8																		
5.a)	Ten coins are thrown simultaneously. Determine the probability of getting at least i)seven heads ii) six heads	CO3	K3	7																		
b)	Establish that the mean and variance of a poison distribution are equal.	CO3	K3	8																		
(OR)																						
6.a)	In a normal distribution 31% of the items are under 45 and 8% are over 64. Determine mean and standard deviation	CO4	K3	8																		
b)	Prove the memory less property of exponential distribution.	CO4	K2	7																		

7.a)	Explain the following concepts (i) Large and small samples (ii) Type I and Type II errors (iii) Critical region and level of significance.	C05	K1	8												
b)	On the basis of their scores, 200 candidates of a civil service examination are divided into two groups the upper 30% and the 70%, Consider the first question of this examination. Among the first group, 40 had the correct answer, whereas among the second group, 80 had the correct answer. On the basis of these results, can one conclude that the first question is no good at discriminating ability of the type being examined here? (Use 5% los)	C05	K2	7												
(OR)																
8. a)	The height of 10 males of a given locality are found to be 70, 67, 62, 68, 61, 68, 70, 64, 64, 66 inches, Is it reasonable to believe that the average height is greater than 64 inches? Test at 5% significance level assuming that for 9 degrees of freedom $P(t > 1.83) = 0.05$ .	C05	K3	7												
b)	Fit a binomial distribution and test for goodness of fit for the following data <table border="1" style="margin-left: 20px;"> <tr> <td>X</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>f(x)</td> <td>17</td> <td>52</td> <td>54</td> <td>31</td> <td>6</td> </tr> </table>	X	0	1	2	3	4	f(x)	17	52	54	31	6	C05	K3	8
X	0	1	2	3	4											
f(x)	17	52	54	31	6											
9.a)	Mention the characteristics of (M/M/1 : ∞/FIFO) queuing system.	C06	K1	7												
b)	A T.V. repair man finds that the time spent on his jobs has an exponential distribution with mean 30 minutes. He repairs sets in the order in which they arrive. The arrival of the sets is approximately Poisson with an average of 10 per an eight-hour day. Find the repairman's idle time each day. How many jobs are ahead of the average set just brought in?	C06	K2	8												
(OR)																
10.a)	Explain Queuing theory with block diagram and discuss the characteristics of queuing models.	C06	K1	7												
b)	Quality control department of a company is managed by a clerk and he takes 10 minutes on an average to check a machine. The machines usually arrive once in 15 mts., in order of the Poisson distribution. One hour of the machine is valued at Rs.15 and the clerk's time is valued at Rs.5 per hour. From above particulars ascertain the hourly cost of the queuing system relating to the quality control department.	C06	K3	8												

**[B19 CS 2201]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**II B. Tech II Semester (R19) Regular Examinations**  
**ADVANCED JAVA PROGRAMMING**  
**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).	Discuss about various AWT user controls.	CO1	K6	8
	b).	Discuss in detail about life cycle of an applet with a neat diagram.	CO1	K6	7
<b>OR</b>					
2.	a).	Develop calculator application using various AWT user controls.	CO1	K6	8
	b).	Discuss how parameters are passed to an applet with an example.	CO1	K6	7
<b>UNIT – II</b>					
3.	a).	Discuss about various listener interfaces in Swings.	CO1	K6	8
	b).	Discuss about the differences between AWT and Swings.	CO1	K6	7
<b>OR</b>					
4.	a).	Discuss about various Layout Managers with an example.	CO1	K6	8
	b).	Discuss about event handling mechanism.	CO1	K6	7
<b>UNIT – III</b>					
5.	a).	Explain life cycle of servlet with a neat diagram.	CO2	K2	8
	b).	Develop a servlet program to fetch data from the database.	CO2	K3	7
<b>OR</b>					
6.	a).	Explain Session tracking and cookies in servlets.	CO2	K2	8
	b).	Develop a servlet program to update data in the database.	CO2	K3	7
<b>UNIT – IV</b>					
7.	a).	Discuss about various JSP elements with examples.	CO3	K6	8
	b).	Develop a JDBC Program to fetch data from the database.	CO3	K6	7
<b>OR</b>					
8.	a).	Discuss about various JDBC drivers with a neat diagram.	CO3	K6	8
	b).	Develop a JSP program to insert data into the database.	CO3	K6	7
<b>UNIT – V</b>					
9.	a).	Explain about URLConnection class and HttpURLConnection class.	CO4	K2	8
	b).	Develop a program for one to one chat application using Socket and ServerSocket classes.	CO4	K3	7
<b>OR</b>					
10.	a).	Explain about remote method invocation and MVC Architecture.	CO4	K2	8
	b).	Develop a program to display attributes and contents of a webpage using URLConnection class.	CO4	K3	7

**[B19 CS 2202]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**II B. Tech II Semester (R19) Regular Examinations**  
**OPERATING SYSTEMS**  
**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 operating system structure?	CO1	K2	7
	b).	Explain about different types of operating system structures	CO1	K2	8
<b>OR</b>					
2.	a).	Why Operating System is a good resource manager? Explain	CO1	K2	7
	b).	What is operating system? Explain operating system concepts?	CO1	K2	8
<b>UNIT - II</b>					
3.	a).	Illustrate Scheduling algorithms with examples	CO2	K2	8
	b).	What is thread? Explain thread scheduling.	CO2	K2	7
<b>OR</b>					
4.	a).	What is semaphore? Explain semaphore solution to producer/consumer problem.	CO2	K2	7
	b).	What is Monitor? Explain Monitor solution to Dining Philosopher's problem	CO2	K2	8
<b>UNIT - III</b>					
5.	a).	What is deadlock? What are the necessary conditions for deadlock?	CO3	K1	7
	b).	Illustrate the algorithm for deadlock detection.	CO3	K2	8
<b>OR</b>					
6.	a).	Apply Banker's algorithms to Multiple resource of each type	CO2	K3	8
	b).	Explain about Deadlock prevention and recovery	CO2	K2	7
<b>UNIT - IV</b>					
7.	a).	What is physical address and virtual address? Explain	CO4	K2	7
	b).	What is page fault? What happens when page fault occurs?	CO4	K1	8
<b>OR</b>					
8.	a).	Explain Page Replacement algorithms with examples	CO4	K2	8
	b).	Illustrate segmentation with paging	CO4	K2	7
<b>UNIT - V</b>					
9.	a).	Illustrate Directory Structure	CO5	K2	8
	b).	Illustrate File system structure	CO5	K2	7
<b>OR</b>					
10.	a).	Illustrate Disk arm scheduling algorithms	CO5	K2	7
	b).	Compare UNIX and MS-DOS Case Studies	CO5	K4	8

**[B19 CS 2203]**  
**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
**II B. Tech II Semester (R19) Regular Examinations**  
**DATA BASE MANAGEMENT SYSTEMS**  
**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 purpose of Data Base Systems	CO1	K2	7
	b).	Explain the Data Base Architecture with a diagram	CO1	K2	8
<b>OR</b>					
2.	a).	Explain Weak Entity set with proper example.	CO2	K2	7
	b).	Explain about Design Issues related to ER Diagrams.	CO2	K2	8
<b>UNIT - II</b>					
3.	a).	Explain Primary and Foreign Key constraints with examples.	CO3	K2	7
	b).	What is Data Base Schema? Explain with example.	CO3	K2	8
<b>OR</b>					
4.		Explain Relational Query languages with proper Examples.	CO3	K3	15
<b>UNIT - III</b>					
5.	a).	Based on the below schemas construct the corresponding SQL queries 7M Sailors (sid:string, sname:string, rating:integer, age:real) Boats (bid:integer, bname:string, color:string) Reserves (sid:integer, bid:integer, day:date) i. Find the colors of boats reserved by Lubber. ii. Find the names of sailors who have reserved at least one boat. iii. Find the names of sailors who have reserved both a red and a green boat. iv. Find the names of sailors who have reserved all boats. v. Display the names of sailors whose name starts with "S". vi. Display all the sailor's names alphabetical order. vii. Display the sid and number of boats reserved by each sailor.	CO4	K3	7
	b).	Apply various types of Joins on two example tables.	CO4	K3	8
<b>OR</b>					
6.		Write a program to apply JDBC-ODBC bridge driver to insert, update and delete data of a table.	CO4	K3	15
<b>UNIT - IV</b>					
7.	a).	What is static hashing? What rules are followed for index selection?	CO5	K1	8
	b).	Define functional dependency? Illustrate its usage in database design.	CO5	K2	7
<b>OR</b>					
8.	a).	Suggest and illustrate three different techniques to achieve 1NF using suitable example.	CO5	K2	5
	b).	Consider the following relation	CO5	K3	10

		<p>CARSALE (Car_No, Date_Sold, Salesman_No, Commision, Discount)</p> <p>Assume a car can be sold by multiple salesman and hence Primary key is (Car_No, Salesman_No)</p> <p>Additional dependencies are:  Date_Sold → Discount.  Salesman_No → Commission.</p> <p>i. Is this relation in 1NF, 2NF or 3NF? Justify your answer.</p> <p>ii. How would you normalize this complexity?</p>			
<b>UNIT - V</b>					
9.	a).	What are the anomalies that occur due to interleave execution? Explain them with example.	CO6	K2	7
	b).	Contrast the difference between view serializability and conflict serializability.	CO6	K4	8
<b>OR</b>					
10.	a).	What is database recovery? Illustrate Shadow paging in detail.	CO6	K2	8
	b).	<p>What is deadlock? Consider the following sequences of actions listed in the order they are submitted to the DBMS.</p> <p>Sequence S1: R<sub>1</sub>(A); W<sub>2</sub>(B); R<sub>1</sub>(B); R<sub>3</sub>(C); W<sub>2</sub>(C); W<sub>4</sub>(B); W<sub>3</sub>(A)</p> <p>Draw wait-for graph in case of Deadlock situation</p>	CO6	K3	7

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**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**  
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
**II B. Tech II Semester (R19) Regular Examinations**  
**DESIGN AND ANALYSIS OF ALGORITHMS**  
**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

\*\*\*\*\*

			CO	KL	M
<b>UNIT-1</b>					
1	a	What are the fundamental steps involved in algorithmic problem solving?	CO1	K2	7
	b	Analyse Best & Worst-case time complexities for Quick Sort with examples.	CO1	K4	8
OR					
2	a	Demonstrate Asymptotic notations with suitable examples.	CO1	K3	8
	b	What is Convex hull Problem? Discuss about Quick Hull Algorithm.	CO1	K2	7
UNIT-2					
3	a	Discuss Union and Find Operations in Disjoint Sets.	CO2	K2	7
	b	What is Spanning tree? Describe Algorithms for minimum spanning-tree.	CO2	K3	8
OR					
4	a	Find an optimal solution to the knapsack instance $n=3$ , $m=20$ , $(p_1, p_2, p_3) = (25, 24, 15)$ and $(w_1, w_2, w_3) = (18, 15, 10)$	CO2	K4	8
	b	Demonstrate Huffman coding with example.	CO2	K3	7
UNIT-3					
5	a	What is principle of optimality and discuss general method of Dynamic programming.	CO3	K2	7
	b	Describe optimal binary search tree and Determine optimal search tree for the following data $n=4$ , $(a_1, a_2, a_3, a_4) = (do, if, int, while)$ , $P(1:4) = (3, 3, 1, 1)$ , $Q(0:4) = (2, 3, 1, 1, 1)$ .	CO3	K4	8
OR					
6	a	Describe solution for travelling salesman problem using Dynamic programming.	CO3	K3	8
	b	Discuss all pairs shortest paths Algorithm.	CO3	K2	7
UNIT-4					
7	a	Illustrate Graph colouring problem.	CO4	K3	7
	b	Find the solution for 0/1 knapsack problem using LCBB given $N=4$ , profits = $(10, 10, 12, 18)$ , weights = $(2, 4, 6, 9)$ and $m=15$ .	CO4	K3	8
OR					
8	a	Describe Sum of Subsets problem. Draw the portion of state space tree that is generated solution for given data $W = \{5, 7, 10, 12, 15, 18, 20\}$ and $M=35$ .	CO4	K3	8
	b	Classify methods in Branch and Bound Technique	CO4	K2	7
UNIT-5					
9	a	Give the importance of Lower Bound Theory.	CO5	K2	7
	b	Demonstrate Classes of NP-hard and NP-Complete.	CO5	K3	8
OR					
10	a	Discuss about Comparison Trees.	CO5	K2	7
	b	Illustrate Non-Deterministic Algorithms.	CO5	K3	8