Course Code: B20BS2101

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A) **R20**

II B. Tech I Semester Regular Examinations

NUMERICAL METHODS & VECTOR CALCULUS

(Common to CE, CIC, CSD, CSE, EEE & IT)

Time: 3 Hrs. **Max. Marks:70**

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

All questions carry equal marks

Assume suitable data if necessary

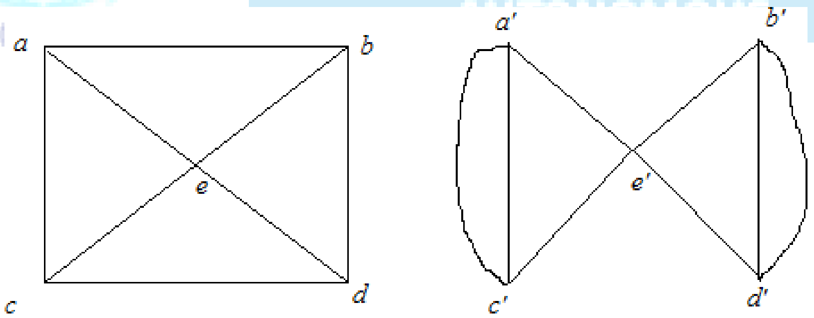
			CO	KL	M
		UNIT-I			
1.	**a)**	Determine a real root of the equation $x \log_{10} x = 1.2$ by Regula-falsi method and correct to two decimal places	1	3	7
	b)	Determine the cube root of 41 using Newton-Raphson method	1	3	7
		OR			
2.	**a)**	Determine Newton's forward difference interpolation formula find Y (3), from the following table X: 0, 5, 10, 15, 20, 25 Y: 7, 11, 14, 18, 24, 32	1	3	7
	b)	Using Lagrange's interpolation formula find Y (10) from the following Table X: 5, 6, 9, 11 Y: 12, 13, 14, 16	1	3	7
		UNIT-II			
3.	**a)**	Evaluate $\int_0^1 x^3$ dx with five subintervals by trapezoidal rule	2	3	7
	b)	Evaluate $\int_0^2 \frac{dx}{x^3+x+1}$ by using Simpsons 1/3rd rule with $h = 0.25$	2	3	7
		OR			
4.	**a)**	Employ Taylor's method to obtain approximate value of y at x= 0.2 for the differential equation $\frac{dy}{dx} = 2y + 3e^x, y(0) = 0$	2	3	7
	b)	Evaluate $y(0.2)$ using Runge-Kutta 4th order method, given $\frac{dy}{dx} = \frac{y^2-x^2}{y^2+x^2},\ y(0) = 1.$	2	3	7
		UNIT-III			
5.	**a)**	Apply change the order of integration and evaluate $\int_0^\infty \int_x^\infty \frac{e^{-y}}{y}\, dx\, dy$	3	3	7
	b)	Evaluate $\int_0^\infty \int_0^\infty e^{-(x^2+y^2)}\, dx\, dy$ by changing to polar coordinates	3	3	7
		OR			
6.	**a)**	Evaluate $\int_{-1}^1 \int_0^z \int_{x-z}^{x+z} (x+y+z)dxdydz$	4	3	7
	b)	Determine the area between the parabolas $y^2 = 4ax$ and $x^2 = 4ay$	4	3	7

		UNIT-IV			
7.	**a)**	Obtain the directional derivative of $\varphi = xy + yz + zx$ at A in the direction of AB where $A = (1,2,-1)$, $B = (5,6,8)$.	**5**	**3**	**7**
	b)	Determine the values of a and b such that the surface $ax^2 - byz = (a+2)x$ and $4x^2y + z^3 = 4$ cut orthogonally at $(1,-1,2)$.	**5**	**3**	**7**
		OR			
8.	**a)**	Show that the vector $(x^2 - yz)\bar{i} + (y^2 - zx)\bar{j} + (z^2 - xy)\bar{k}$ is irrotational and find its scalar potential.	**5**	**3**	**7**
	b)	Determine $Curl\ \bar{F}$ and $div\bar{F}$ for $\bar{F} = x^2y\bar{I} - 2xz\bar{J} + 2yz\bar{K}$	**5**	**3**	**7**
		UNIT-V			
9.	**a)**	Determine the work done in moving a particle once round the circle $x^2 + y^2 = 9$ in the xy- plane by the force $\bar{F} = (2x - y - z)\bar{i} + (x + y - z^2)\bar{j} + (3x - 2y + 4z)\bar{k}$	**6**	**3**	**7**
	b)	Evaluate the line integral by Stokes's theorem for the vector function $\bar{F} = y^2\bar{i} + x^2\bar{j} + (z+x)\bar{k}$ and C is the triangle with vertices $(0,0,0), (1,0,0)$ *and* $(1,1,0)$.	**6**	**3**	**7**
		OR			
10.		Verify Green's theorem in the plane For $\oint_C [(3x^2 - 8y^2)dx + (4y - 6xy)dy]$, where C is boundary of the region defined by $y = \sqrt{x}, y = x^2$	**6**	**3**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

					Course Code: B20BS2103
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
II B. Tech I Semester - MODEL QUESTION PAPER					
MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE					
(Common to AIDS, CIC & CSD)					
Time: 3 Hrs.					**Max. Marks:70**
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT-I			
1.	**a)**	Establish that $\{((p \vee q) \to r) \wedge (\neg p)\} \to (q \to r)$ is a tautology	**1**	**3**	**7**
	b)	Establish 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	**1**	**3**	**7**
		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.	**1**	**3**	**7**
	b)	Determine the PDNF and PCNF of $p \to [(p \to q) \wedge \sim(\sim q \vee \sim p)]$	**1**	**3**	**7**
		UNIT-II			
3.	**a)**	Determine the number of ways of arranging 6 boys and 6 girls in a row. Also determine the number of arrangements in which i) All girls will be together. ii) No two girls will be together. iii) Boys and girls come alternatively.	**2**	**3**	**7**
	b)	i)Determine the term independent of x in the expansion of $\left(x^2 + \frac{1}{x}\right)^{12}$ ii) Determine the coefficient of $x^5y^{10}z^5w^5$ in the expansion $(x + 7y + 3z + w)^{25}$	**2**	**3**	**7**
		OR			
4.	**a)**	A cricket team of 11 is to be selected out of 14 players of whom 5 are bowlers. Determine the number of ways in which this can be done so as to include at least 3 bowlers.	**2**	**3**	**7**
	b)	Determine the number of integers between 1 and 250 which are divisible by any of the integers2,3,5 or 7.	**2**	**3**	**7**
		UNIT-III			
5.	**a)**	Let R denote a relation on the set of ordered pairs of positive integers	**3**	**3**	**7**

		such that $(x,y)R(u,v)$ if and only if $xv = yu$. Then establish that 'R' is an equivalence relation.			
	b)	Define Hasse diagram. Draw the Hasse diagram for the Poset $(P(S), \subseteq)$ where $S = \{1,2,3\}$	**3**	**3**	**7**
		OR			
6.	**a)**	Establish that a Lattice 'L' is distributive iff $\forall x,y,z \in L \ (x*y)\oplus(y*z)\oplus(z*x) \equiv (x\oplus y)*(y\oplus z)*(z\oplus x)$	**4**	**3**	**7**
	b)	Consider the Boolean polynomial $p(x,y,z) = x*(y \oplus z')$. If B={0,1}, compute the truth table of the function $f: B_3 \longrightarrow B$ defined by p. Also draw logical diagram.	**4**	**3**	**7**
		UNIT-IV			
7.	**a)**	Determine the number of integral solutions for the equation $x_1+x_2+x_3+x_4+x_5=20$ where $x_1\geq3$, $x_2\geq2$, $x_3\geq4$, $x_4\geq6$ and $x_5\geq0$.	**5**	**3**	**7**
	b)	Solve the recurrence relation $a_n - 7a_{n-1} + 10a_{n-2} = 4^n$ for $n \geq 2$	**5**	**3**	**7**
		OR			
8.	**a)**	Determine the coefficient of x^{14} in $(1+x+x^2+x^3)^{10}$	**5**	**3**	**7**
	b)	Solve the recurrence relation $a_n - 5a_{n-1} + 6a_{n-2} = 0,\ n \geq 2$ by using Generating functions.	**5**	**3**	**7**
		UNIT-V			
9.	**a)**	Define isomorphism of graphs. Examine whether the following graphs are isomorphic or not. 	**6**	**3**	**7**
	b)	State and Prove Euler's formula for planar graphs.	**6**	**3**	**7**
		OR			
10.	**a)**	Establish that a tree with "n" elements has exactly "n-1" edges.	**6**	**3**	**7**
	b)	Explain Kruskal's algorithm for minimal spanning tree with a suitable Example.	**6**	**3**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

					Course Code:B20CI2101
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
II B. Tech I Semester - MODEL QUESTION PAPER					
MICRO PROCESSORS AND MICRO CONTROLLERS					
(For CIC)					
Time: 3 Hrs.					**Max. Marks:70**
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT – I			
1.	**a).**	Distinguish between microprocessor and microcontroller.	**1**	**2**	**7**
	b).	Discuss in detail about High-Level Language programming System Development Environment.	**1**	**2**	**7**
		OR			
2.	**a).**	Explain in detail about integrated development environment	**1**	**2**	**7**
	b).	Detailed discussion about Microcontrollers and system design	**1**	**2**	**7**
		UNIT – II			
3.	**a).**	Draw the internal architecture of 8086 microprocessor and explain its operation.	**2**	**2**	**7**
	b).	Explain the Instruction set of 8086 microprocessor with example.	**2**	**2**	**7**
4.	**a).**	Define addressing mode and explain different addressing modes used in 8086 Microprocessor with examples	**2**	**2**	**7**
	b).	Sketch the timing diagram of minimum mode write operation and explain it.	**2**	**3**	**7**
		UNIT – III			
5.	**a).**	Explain the briefly the different modes operation of 8255 PPI.	**3**	**2**	**7**
	b).	Explain different interfacing methods of 8255.	**3**	**2**	**7**
		OR			
6.	**a).**	Explain the briefly about 8254 timer interface.	**3**	**2**	**7**
	b).	Detailed discussion about 8259 PIC and DMA controller interface.	**3**	**2**	**7**
		UNIT – IV			
7.	**a).**	Explain in detail about interrupts in 8051.	**4**	**2**	**7**
	b)	Explain in detail about serial communication system design with 8051.	**4**	**2**	**7**
		OR			
8.	**a).**	Draw and explain the internal architecture of 8051 family microcontroller and explain each block of it.	**4**	**2**	**7**
	b).	Explain the briefly the different Addressing modes of 8051.	**4**	**2**	**7**

		UNIT – V			
9.	**a).**	Explain in detail Embedded system design methodologies	**5**	**2**	**7**
	b).	Describe briefly about Advanced Microprocessor Architectures-286.	**5**	**2**	**7**
		OR			
10.	**a).**	Explain about Microprocessors and Microcontrollers System level interfacing design.	**5**	**2**	**7**
	b).	Explain in detail about RISC processors.	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

					Course Code: B20CS2103
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
II B. Tech I Semester - MODEL QUESTION PAPER					
OPERATING SYSTEMS					
(Common to CIC, CSE)					
Time: 3 Hrs.					**Max. Marks:70**
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT-I			
1	**a).**	Explain the abstract view of system components.	**1**	**2**	**7**
	b).	Discuss the Simple Operating System Structure.	**1**	**2**	**7**
		OR			
2	**a).**	Explain different types of Operating Systems.	**1**	**2**	**7**
	b).	Define a System call. Explain the various types of system calls provided byOperating System,	**1**	**2**	**7**
		UNIT-II			
3	**a).**	Differentiate one- to- one, many- to-one multi-threading models.	**2**	**2**	**7**
	b).	Explain Dining Philosophers problem? Discuss the solution to Dining Philosopher's problem using monitors.	**2**	**2**	**7**
		OR			
4	**a).**	Explain Primitive Priority Scheduling Algorithms with an Example?	**2**	**2**	**7**
	b).	Discuss the solution to Reader/Writers Problem using semaphores.	**2**	**2**	**7**
		UNIT-III			
5	**a).**	Differentiate paging and segmentation.	**3**	**2**	**7**
	b).	Explain briefly the performance of Demand paging with an example.	**3**	**2**	**7**
		OR			
6	**a).**	Define Page Fault. When does a page fault occur? Describe the action taken byOS when page fault occurs.	**3**	**2**	**7**
	b).	Apply FIFO and LRU page replacement algorithms for the following string todetermine the number of page faults. 7 0 1 2 0 3 0 4 2 3 0 2 1 2 0 1 7 0 1 for a memory with '3' frames.	**3**	**3**	**7**
		UNIT-IV			
7	**a).**	Apply the deadlock detection algorithm to determine deadlock will exist or notfor the following system with 5 process and 3 resource types (resource type Ahas 7 instances, B has 2 instances, and C has 6 instances) Snapshot at time T0	**4**	**3**	**7**

Process	Allocation			Request			Available		
	A	B	C	A	B	C	A	B	C
P_0	0	1	0	0	0	0	0	0	0
P_1	2	0	0	2	0	2			
P_2	3	0	3	0	0	0			
P_3	2	1	1	1	0	0			
P_4	0	2	2	0	0	2			

	b).	Explain various File access methods with Suitable examples	**4**	**2**	**7**
		OR			
8	**a).**	Explain deadlock avoidance using banker's algorithm with suitable example.	**4**	**2**	**7**
	b).	Apply FCFS, SSTF disk arm scheduling schemes to find total number headmovements for the following string 98 183 37 122 14 124 65 67 assume the head pointer at 53.	**4**	**3**	**7**
		UNIT- V			
9	**a).**	Explain System and Network Threats	**5**	**2**	**7**
	b).	Describe the System Component of Windows XP architecture	**5**	**2**	**7**
		OR			
10	**a).**	Explain Principles and domain Protections.	**5**	**2**	**7**
	b).	Describe the components of the Linux System.	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

					Course Code:B20CI2102
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
II B. Tech I Semester - MODEL QUESTION PAPER					
JAVA PROGRAMMING					
(For CIC)					
Time: 3 Hrs.					**Max. Marks:70**
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Discuss about the Features of Java.	**1**	**2**	**7**
	b).	Explain about Method Overloading with an example.	**1**	**2**	**7**
		OR			
2.	**a).**	Explain Constructor Overloading with suitable example.	**1**	**2**	**8**
	b).	Discuss about Nested class with an example.	**1**	**2**	**6**
		UNIT-II			
3.	**a).**	Explain the differences between Arrays and Array List.	**2**	**2**	**7**
	b).	Why Java String object is immutable? Explain by using a suitable example.	**2**	**2**	**7**
		OR			
4.	**a).**	Explain the differences between String class and String Buffer class.	**2**	**2**	**7**
	b).	Write a Java Program to implement various methods of Hash Map class.	**2**	**2**	**7**
		UNIT-III			
5.	**a).**	Why multiple in heritance is not possible through classes in Java? Explain it with an example.	**3**	**3**	**8**
	b).	Differentiate Abstract class and Interface.	**3**	**2**	**6**
		OR			
6.	**a).**	Discuss about Byte Oriented IO and Character Oriented IO.	**3**	**2**	**6**
	b).	Discuss about procedure for creating packages with an example.	**3**	**3**	**8**
		UNIT-IV			
7.	**a).**	Explain about the mechanism of Exception handling in Java.	**4**	**2**	**7**
	b).	Write a Java Program to create Custom Exception.	**4**	**3**	**7**
		OR			
8.	**a).**	Explain about the life cycle of thread with a neat sketch.	**4**	**2**	**7**
	b).	Write a Java program to implement thread synchronization using multiplication tables.	**4**	**3**	**7**

		UNIT-V			
9.	**a).**	Differentiate AWT and Swings.	**5**	**2**	**7**
	b).	Write a JDBC program to retrieve data from the database.	**5**	**3**	**7**
		OR			
10.	**a).**	Explain different types of JDBC Drivers with neat diagrams.	**5**	**2**	**8**
	b).	Explain different types of Layout Managers.	**5**	**2**	**6**

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

	Course Code: B20BS2201
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)	**R20**

II B. Tech II Semester MODEL QUESTION PAPER

PROBABILITY AND STATISTICS

(Common to AIDS, AIML, CIC & CSE)

Time: 3 Hrs. **Max. Marks:70**

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

All questions carry equal marks

Assume suitable data if necessary

<table>
<tr><th></th><th></th><th></th><th>CO</th><th>KL</th><th>M</th></tr>
<tr><td></td><td></td><td>UNIT-I</td><td></td><td></td><td></td></tr>
<tr><td>1.</td><td>a).</td><td>What are the different methods in collecting Primary and Secondary data.</td><td>1</td><td>2</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>Define
i) Skewness ii) Kurtosis iii) Moments</td><td>1</td><td>2</td><td>7</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td>2.</td><td>a).</td><td>The diameter of an electric cable is assumed to be a continuous random variable with p.d.f $f(x) = 6x(1-x), 1 \le x \le 1,$ verify that the above is p.d.f. also find mean and variance.</td><td>1</td><td>3</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>Define Random variable and explain about types of random variables with examples. Also discuss discrete and continuous probability functions of random variables.</td><td>1</td><td>2</td><td>7</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>UNIT-II</td><td></td><td></td><td></td></tr>
<tr><td>3.</td><td>a).</td><td>A two-dimensional r.v. (X, Y) has a bivariate distribution given by
P (X, Y) = $\frac{x^2+y}{32}$, $for x = 0,1,2,3$ $and y = 0,1.$
Calculate marginal distributions of X and Y</td><td>2</td><td>3</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>If X is a continuous random variable and Y = aX + b, prove that E(Y) = a E (X) + b and V(Y)= a^2V(X), where V stands for variance and a, b are constants.</td><td>2</td><td>3</td><td>7</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td>4.</td><td>a).</td><td>Let X be a random variable with the following distribution
<table><tr><td>X</td><td>6</td><td>9</td><td>12</td></tr><tr><td>P(X=x)</td><td>1/6</td><td>1/2</td><td>1/3</td></tr></table>Find E(x), E (x^2) and using the laws of expectation calculate $E(2X+1)^2$</td><td>2</td><td>3</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>A random variable X has the probability density function is given by
$f(x) = x \quad if\ 0 \le x < 1$
$\quad = 2 - x \ if\ 1 \le x < 2$
$\quad = 0 \quad elsewhere$
Find its moment generating function.</td><td>2</td><td>3</td><td>7</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><td></td><td></td><td>UNIT-III</td><td></td><td></td><td></td></tr>
<tr><td>5.</td><td>a).</td><td>Explain fitting of a parabola and obtain normal equations.</td><td>3</td><td>3</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>Fit a straight line to the following data by method of least squares<table><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>1.8</td><td>1.3</td><td>2.5</td><td>6.3</td></tr></table></td><td>3</td><td>3</td><td>7</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td>6.</td><td>a).</td><td>Define types of correlation and regression. Write the properties of correlation and regression coefficients.</td><td>4</td><td>2</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>Find the regression lines for the following data<table><tr><td>x</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>f(x)</td><td>5</td><td>18</td><td>28</td><td>12</td><td>7</td><td>6</td><td>4</td></tr></table></td><td>4</td><td>3</td><td>7</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>UNIT-IV</td><td></td><td></td><td></td></tr>
<tr><td>7.</td><td>a).</td><td>Fi a Binomial distribution for the following data<table><tr><td>x</td><td>0</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(x)</td><td>56</td><td>156</td><td>132</td><td>92</td><td>37</td><td>22</td><td>4</td><td>0</td><td>1</td></tr></table></td><td>4</td><td>3</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>Show that mean and variance are equal for Poisson distribution.</td><td>5</td><td>3</td><td>7</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td>8.</td><td>a).</td><td>In a normal distribution 31% of the items are under 45 and 8% are over 64. Find mean and standard deviation.</td><td>5</td><td>3</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>Define Uniform distribution and calculate its mean and Variance.</td><td>5</td><td>3</td><td>7</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>UNIT-V</td><td></td><td></td><td></td></tr>
<tr><td>9.</td><td>a).</td><td>Explain the following concepts
(i) Large and small samples
(ii) Type I and Type II errors
(iii) Critical region and level of significance.</td><td>6</td><td>2</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>A coin is tossed 400 times and head turned up 216 times. Test the hypothesis is the coin unbiased?</td><td>6</td><td>3</td><td>7</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td>10.</td><td>a).</td><td>The marks obtained by 15 students in an examination have a mean 60 and variance 30. Find 99% confidence interval for the mean of the population marks, assuming it to be normal.</td><td>6</td><td>3</td><td>7</td></tr>
<tr><td></td><td>b).</td><td>Fit a Poisson distribution and test for goodness of fit for the following data<table><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></td><td>6</td><td>3</td><td>7</td></tr>
</table>

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

					Course Code: B20CS2201
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					R20
II B. Tech II Semester MODEL PAPER					
DATA BASE MANAGEMENT SYSTEMS					
(Common to CIC & CSE)					
Time: 3 Hrs.					Max. Marks:70
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	**KL**	**M**
		UNIT-I			
1	**a).**	Compare Database Management Systems with File Processing Systems.	**1**	**2**	**8**
	b).	Explain the duties of DBA	**1**	**2**	**6**
		OR			
2	**a).**	Explain Three-Tier architecture for data independence.	**1**	**2**	**7**
	b).	Describe the structure of a Database Management System.	**1**	**2**	**7**
		UNIT-II			
3		Give syntax and apply the DDL and DML commands for defining and constructing two tables of your choice with appropriate data.	**2**	**3**	**14**
		OR			
4		Illustrate different Integrity constraints in relational model with appropriate examples	**2**	**3**	**14**
		UNIT-III			
5	**a).**	Illustrate E-R diagram with different mapping cardinalities	**3**	**3**	**8**
	b).	Illustrate aggregation in ER model with example.	**3**	**3**	**6**
		OR			
6	**a).**	Apply different kinds of joins in SQL on example tables	**3**	**3**	**8**
	b).	Demonstrate how set operations are performed in SQL with examples.	**3**	**3**	**6**
		UNIT-IV			
7	**a).**	Illustrate BCNF and 3NF	**4**	**3**	**7**
	b).	Given Relation R(A,B,C,D,E) and FD(A->B,B->C,C->D,D->E). Find closure of each attribute and then determine candidate keys.	**4**	**3**	**7**
		OR			
8	**a).**	How do you use multi valued dependencies to determine whether a table is in 4NF or not?	**4**	**3**	**7**
	b).	A relation R(A,B,C,D) with FD's {A->B, B->C, C->D} is decomposed into R1(A,B,C) and R2(C,D). Find whether it is lossless join decomposition or not and why?	**4**	**3**	**7**

		UNIT-V			
9	**a).**	Explain ARIES Recovery Algorithm	**5**	**2**	**6**
	b).	Describe procedure to insert a new element in B+ tree	**5**	**2**	**8**
		OR			
10		Explain 2PL and time stamp ordering protocols	**5**	**2**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

Course Code:B20CI2201					
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					R20
II B. Tech II Semester MODEL QUESTION PAPER					
COMPUTER ORGANIZATION &ARCHITECTURE					
(For CIC)					
Time: 3 Hrs.					Max. Marks:70
Answer **ONE Question** from **EACH UNIT**					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	KL	M
		UNIT-I			
1.	a).	Differentiate between Von Neumann and Harvard Architecture	1	2	7
	b).	Explain different arithmetic operations on floating point numbers	1	2	7
		OR			
2.	a).	Discuss three representations of Signed integers with suitable examples.	1	2	7
	b).	Describe the different types of computers.	1	2	7
		UNIT-II			
3.	a).	Construct an instruction cycle and describe it with suitable example	2	3	7
	b).	Explain various types of interrupts in detail.	2	2	7
		OR			
4.	a).	Explain in detail about timing and control	2	2	7
	b).	Illustrate the micro-programmed control unit.	2	2	7
		UNIT-III			
5.	a).	Write a program to evaluate the arithmetic statement using different instruction formats Y=(e + f) * (g - h)	3	3	7
	b).	What do you mean by addressing mode? Explain the following addressing modes with examples. i) Index addressing mode ii) Relative addressing mode	3	2	7
		OR			
6.	a).	Explain general register organization	3	2	7
	b).	Explain RISC with an example	3	2	7
		UNIT-IV			
7.	a).	What is the need of cache memory? Discuss any two mapping techniques used in cache memory.	4	2	7
	b).	Describe memory hierarchy with a neat block diagram in a computer system. Compare the parameters size, speed and cost per bit in the hierarchy.	4	2	7

		OR			
8.	**a).**	With a neat sketch explain the working principle of DMA	**4**	**2**	**7**
	b).	Discuss about handshaking technique in asynchronous data transfer	**4**	**2**	**7**
		UNIT-V			
9.	**a).**	What is multiprocessor system? Explain the advantages of multi processors over uniprocessors	**5**	**2**	**7**
	b).	What is parallel processing? Explain any parallel processing mechanism.	**5**	**2**	**7**
		OR			
10.	**a).**	Explain the interconnection structure for multiprocessor systems	**5**	**2**	**7**
	b).	Explain the instruction pipeline processing in RISC architecture.	**5**	**2**	**7**

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

					Course Code:B20CI2202
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		II B.Tech. II Semester MODEL QUESTION PAPER			
		FORMAL LANGUAGES AND AUTOMATA THEORY			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks:70**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Construct DFA for the following languages i) L={w/w begins with 1 and ends with 00, w in {0,1}*} ii) L={w/w contains Even number of zeros and Even number of ones, w in {0,1}*}	**1**	**3**	**7**
	b).	Illustrate the differences in Mealy and Moore Machines and give an example for Mealy machine and Moore machine.	**1**	**2**	**7**
		OR			
2.	**a).**	Construct NFA for accepting the strings {ab, ba} and then convert it to DFA.	**1**	**3**	**7**
	b).	Explain about minimization algorithms and apply minimization algorithmto reduce the number of states of following DFA	**1**	**3**	**7**
		UNIT-II			
3.	**a).**	Define Regular expression and construct NFA with ϵ moves equivalent to the Regular Expression (ab + aab)*	**2**	**3**	**7**
	b).	Identify the Regular expression and construct the equivalent Finite automata for the following language descriptions. 1. Set of all strings beginning with 01 and ending with 10. 2. Set of all strings having three consecutive zeros or three consecutive ones.	**2**	**3**	**7**
		OR			
4.	**a).**	Explain the statement of the Pumping lemma on Regular sets and list the applications of pumping lemma.	**2**	**2**	**7**
	b).	Apply pumping lemma to show the set of all even length palindrome strings is not regular.	**2**	**3**	**7**
		UNIT-III			
5.	**a).**	Construct Context free grammar for L= { WCW^R / W in (0+1)* }	**3**	**3**	**7**
	b).	Define CNF and convert the following CFG to CNF S $\rightarrow$ aSa / bSb / a / b	**3**	**3**	**7**
		OR			
6.	**a).**	Construct Context free grammar for generating all palindrome strings over (0,1)	**3**	**3**	**7**

	b).	Define GNF and Convert the following CFG to GNF $S \rightarrow AA \mid a$, $A \rightarrow SS \mid b$	**3**	**3**	**7**
		UNIT-IV			
7.	**a).**	Define Pushdown Automata? Explain the acceptance of PDA by empty stack using an example.	**4**	**2**	**7**
	b).	Construct PDA for recognizing the Context free language $L= \{a^n\ c\ b^n / n>=1\}$	**4**	**3**	**7**
		OR			
8.	**a).**	What is ID of PDA? Explain the acceptance of PDA by final state	**4**	**2**	**7**
	b).	Construct a PDA to accept language of odd length palindrome strings	**4**	**3**	**7**
		UNIT-V			
9.	**a).**	Define the Turing Machine and Explain different types of TM?	**5**	**2**	**7**
	b).	Construct a TM for recognizing the language $L= \{WW^R / W \text{ in } (a,b)^*\}$	**5**	**3**	**7**
		OR			
10.	**a).**	Explain about PCP and give an example	**5**	**2**	**7**
	b).	Explain about P and NP classes	**5**	**2**	**7**

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks

Course Code: B20HS2201

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A) | **R20**

II B.Tech. II Semester MODEL QUESTION PAPER

MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTANCY

(Common to AIML, CIC, CSE & IT)

Time: 3 Hrs. **Max. Marks: 70**

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

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
		UNIT-I			
1.		Define Managerial Economics and Explain its nature and scope	**1**	**2**	**14**
		OR			
2.		What do you mean by Elasticity of demand? Explain in detail about Degrees of Price elasticity of Demand?	**1**	**2**	**14**
		UNIT-II			
3.		Define Cost & classify the Elements of Cost?	**2**	**2**	**14**
		OR			
4.		How do you calculate BEP? What are its Assumptions and Applications?	**2**	**3**	**14**
		UNIT-III			
5.		What are Market Structures and explain the features of Perfect Competition?	**3**	**2**	**14**
		OR			
6.		Why is pricing significant in the context of business? Describe any four pricing practices?	**3**	**2**	**14**
		UNIT-IV			
7.		Describe about the Importance of Accounting and types of accounts	**4**	**2**	**14**
		OR			

8.		From the following Trail Balance of Suresh as at December 31, 2013, prepare Trading, Profit and Loss Account for the year ended December 31, 2013 and a Balance Sheet as on that date:	4	3	14

	Dr. (Rs.)	Cr. (Rs.)
Purchases of materials	32,000	
Productive wages	13,000	
Sales		60,000
Salaries	4,000	
Travelling expenses	1,000	
Carriage inwards	550	
Insurance	300	
Commission	650	
Rent and rates	1,000	
Cash in hand	350	
Cash at bank	5,550	
Repairs	600	
Sundry expenses	110	
Mortgage		6,100
Buildings	8,000	
Machinery	3,000	
Furniture	1,000	
Stock on hand (1.1.2013)	11,500	
Capital		21,310
Sundry debtors	9,000	
Sundry creditors		4,200
	91,610	91,610
Closing stock Rs. 12,000		

		UNIT-V			
9.		Explain about capital and the sources available for raising finance	5	2	14
		OR			
10.		Explain about the concept and causes of depreciation. Evaluate the straight- line method and diminishing balance methods	5	2	14

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks