

Course Code: B20HS1101					
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					R 20
I B. Tech I Semester –MODEL PAPER					
ENGLISH					
Common to AIDS, CE, CIC, CSE, ECE, EEE, IT, ME, AIML & CSG					
Time: 3Hrs.			Max. Marks: 70		
Answer any one Question from EACH UNIT.					
All questions carry equal marks.					
			M	CO	KL
UNIT-I					
1	a.	Compose an essay on “A Drawer full of happiness”.	7	2	3
	b.	Identify & Write suitable verb forms for the following. i) He _____ (work) in the college when his brother studied his engineering. ii) He _____ (finish) his task before his friend visited him. iii) As soon as he _____ (get) the telegram, at once he started. iv) It is high time she _____ (do) her project.. v) The book _____ (comprise) five chapters. vi) The photo of my grandfather _____ (hang) on the wall. vii) Neither team _____ (score) any goal.	7	5	3
OR					
2	a.	Compose an essay on any ONE of the following. i) Pros and cons of Social Networking Sites ii) The essence of education	7	2	3
	b.	Read the following passage and answer the questions that follow: Liquids are practically incompressible. Unlike gases but like solids, a liquid does not change much in volume when the pressure on it is changed, even when the pressures of thousands of atmospheres are involved. The kinetic theory accounts for this saying that the amount of free space between the molecules of a liquid has been reduced almost to a minimum. Any attempt to compress the liquid meets with resistance as the electron cloud of one molecule repels the electron cloud of the adjacent molecule. Liquids diffuse slowly, but in gases it is more rapid. It occurs because molecules have kinetic energy and move from one place to another .In a liquid ,molecules do not move very far before they collide with neighbouring molecules. i) What is the nature of the liquids?	7	4	3

		ii) What does kinetic theory say about the incompressible nature of liquids? iii) What are the different kinds of matter? iv) Give the meaning for ‘diffusion’? v) Why diffusion is more rapid in gases? vi) Give the antonym for ‘kinetic’. vii) Mention a suitable title.			
UNIT-II					
3	a.	Compose an essay on the relevance of Nehru’s letter to Indira to the present context.	7	2	3
	b.	Write antonyms and construct sentences for any SEVEN of the following words . i) procreate ii) hectic iii) reckon iv) beguile v) opulent vi) suffuse vii) astute viii) mandatory	7	5	3
OR					
4	a.	Formulate a precis for the following passage. Most of us use the products of science – railways, aeroplanes, electricity, wireless and thousands of others – without thinking how they came into existence. We take them for granted, as if we were entitled to them as a matter of right. We are very proud of the fact that we live in an advanced age and are ourselves very advanced. Now, there is no doubt that our age is very different from previous ages and I think it is perfectly correct to say that is far more advanced. But it is a different thing from saying that we, as individuals or groups, are more advanced. It would be the height of absurdity to say that because an engine driver can run an engine and Plato or Socrates could not, the engine driver is more advanced than, or is superior to, Plato or Socrates. But it would be perfectly correct to say that the engine itself is a more advanced method of locomotion than Plato’s chariot was.	7	2	3
	b.	Write meanings and bring out the difference in usage for any FOUR of the following homonyms. i) Affect/Effect iii) Veracious/Voracious iv) Apposite/Opposite ii) Continuous/ Continual iv) Facilitate/Felicitate v) Intelligent/ Intelligible	7	5	3
UNIT-III					
5	a.	Compose an essay on “Stephen Hawking – Positivity ‘Benchmark’.	7	2	3

	b.	Draft a letter to the educational consultancy asking about the information regarding the post-graduation and research programmes in foreign universities.	7	4	3
OR					
6	a.	Write an E-mail to the manufacturer complaining about the computer that you bought recently.	7	4	3
	b.	Draft a resume and covering letter for the post of a software engineer.	7	4	3
UNIT-IV					
7	a.	Summarize the essay “Liking a Tree, Unbowed”?	7	2	3
	b.	Give the meaning and write sentences of any SEVEN of the following FOREIGN PHRASES. i) ab initio ii) a la mode iii) siesta iv) amour propre v) ad hoc vi) Alma Mater vii) alter ego viii) bonafide	7	5	3
OR					
8	a.	Write a pamphlet on book exhibition/ tour.	7	2	3
	b.	Construct Sentences through the transformation of the following sentences as indicated. i. They painted the house green. (Add a question tag) ii. Do it. (Change the voice) iii) He said to the boy, “What are you doing here.” (Convert it into Indirect Speech) iv) My father said that Honesty is the best policy. (Convert it into direct Speech) v) They were very poor. They had insufficient food for themselves. They invited the strangers to dinner. (Change it into Complex) vi) The old man being weak could not walk properly. (Change it into Compound) vii). Shakespeare is the most famous of all writers in English. (Change it into positive degree)	7	5	3
UNIT-V					
9	a.	Elaborate the message which the author communicates to the readers through the lesson “Stay Hungry-Stay Foolish”.	7	2	3
	b.	Correct and Re-construct any SEVEN of the following Sentences. i) One must use his best efforts if he wishes to succeed.	7	5	3

		ii) Since he came, we are happy. iii) I could hardly believe in my eyes. iv) Suppose, if you arrive late, you will miss the show. v) Neither Jack is intelligent nor hardworking. vi) Hardly the sun had risen when we set out. vii) It is high time she improves her behaviour. viii) She gave me many informations.			
OR					
10	a.	Compile a report to the editor about the problem of brain drain in India	7	4	3
	b.	Fill in the blanks with the appropriate choices. i) The film Titanic was promoted with all the usual _____ a) hyperbole b) dialect c) taboo d) aesthetic ii) The schedule of a few planes was _____ due to heavy smog. a) prohibited b) abated c) impeded d) bolstered iii) Einstein had never bothered by the flood of _____ from his fellow critics. a) recantation b) castigation c) vituperation d) skepticism iv) The field had been _____ by heavy downpour last night. a) tirade b) fluctuated c) mixed d) saturated v) Modi is good at giving _____ speeches. a) extempore b) prepared c) epilogue d) long vi) The manuscript was reproduced in _____. a) facsimile b) archives c) cache d) vacillation vii) Examine the report carefully before you _____ it publicly in front of the press and media. a) rescind b) repudiate c) revere d) redress	7	2	3

I B.Tech I Semester –MODEL PAPER

MATHEMATICS – I

(LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS)

Common to AIDS, CE, CIC, CSE, ECE, EEE, IT, ME, AIML & CSG

TIME: 3 Hrs.

Max. Marks: 70

M

Answer any One Question from Each Unit

All questions carry equal marks

UNIT-I		M	CO	KL
1.a)	Solve the system of equations $20x + y - 2z = 17, 3x + 20y - z = -18, 2x - 3y + 20z = 25$ by Gauss –Siedel method.	7	1	3
b)	Investigate the values of λ and μ so that the equations $2x + 3y + 5z = 9; 7x + 3y - 2z = 8; 2x + 3y + \lambda z = \mu;$ have (i)no solution (ii) unique solution (iii) infinite number of solutions.	7	1	3
(OR)				
2. a)	Solve the system of equations $10x + y+z =12, 2x+10y+z =13, 2x+2y+10z =14$ by Gauss- elimination method.	7	1	3
b)	Define rank and determine the rank of the matrix A by reducing it to its normal form where A is: $A = \begin{bmatrix} 2 & 3 & -1 & -1 \\ 1 & -1 & -2 & -4 \\ 3 & 1 & 3 & -2 \\ 6 & 3 & 0 & -7 \end{bmatrix}$	7	1	3
UNIT-II				
3.a)	Verify Cayley-Hamilton theorem and use the theorem to determine the inverse of the matrix $A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & -1 \\ 1 & -1 & 1 \end{bmatrix}$	7	2	3
b)	Reduce the quadratic form $2x^2 + 2y^2 + 2z^2 - 2xy - 2yz - 2zx$ to canonical form by the use of an orthogonal transformation.	7	2	3
(OR)				
4. a)	Determine the Eigenvalues and the corresponding Eigen vectors of the matrix $A = \begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$	7	2	3

b)	If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$, use Cayley-Hamilton theorem to determine the value of $2A^5 - 3A^4 + A^2 - 4I$. Also determine the inverse of A.	7	2	3
UNIT-III				
5.a)	Solve $\frac{dy}{dx} + (\tan x)y = (\sec x)y^3$.	7	3	3
b)	Solve $(y^4 + 2y)dx + (xy^3 + 2y^4 - 4x)dy = 0$.	7	3	3
OR				
6. a)	Determine the orthogonal trajectories of the family of parabolas $ay^2 = x^3$.	7	4	3
b)	A body originally at $80^\circ C$, cools down to $60^\circ C$ in 20 minutes, the temperature of air being $40^\circ C$. Determine the temperature of the body after 40 minutes from the original?	7	4	3
UNIT-IV				
7.a)	Solve $(D^3 - D)y = 2x + 1 + 4 \cos x$.	7	5	3
b)	Solve $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = e^x \log x$ by the method of variation of parameters.	7	5	3
OR				
8. a)	Solve $(D^2 + 3D + 2)y = e^{e^x}$.	7	5	3
b)	Use method of variation of parameters to solve the equation $\frac{d^2y}{dx^2} + y = \operatorname{cosec} x$.	7	5	3
UNIT-V				
9.a)	Determine $L\{t \cos at\}$ and $L\left\{\int_0^t e^{-t} \cos t dt\right\}$.	7	6	3
b)	Using convolution theorem evaluate $L^{-1}\left\{\frac{1}{(s+a)(s+b)}\right\}$.	7	6	3
OR				
10. a)	Determine $L^{-1}\left\{\frac{5s+3}{(s-1)(s^2+2s+5)}\right\}$.	7	6	3
b)	Solve $\frac{d^2y}{dt^2} + 4\frac{dy}{dt} + 3y = e^{-t}$, $y(0) = y'(0) = 1$ by using Laplace transforms.	7	6	3

I B. Tech I Semester - MODEL QUESTION PAPER

APPLIED PHYSICS

(Common to CIC, CSE, ECE, IT, AIML & CSG)

Time: 3 Hrs.

Max. Marks:70

Answer any one Question from Each Unit

All questions carry equal Marks

			M	CO	KL
UNIT-I					
1	a.	Explain the principle of Superposition and discuss the conditions for maxima and minima of intensity.	6	1	2
	b.	How the Newton's Rings are formed and deduce an expression for the wave length of light used.	8	1	3
OR					
2	a.	Distinguish the different types of diffractions of light.	6	1	2
	b.	Give qualitative and quantitative analysis of Fraunhofer diffraction at a single slit	8	1	3
UNIT-II					
3	a.	Define polarization and explain the different types of polarization possible in a dielectric	6	2	2
	b.	Deduce the Clausius Mosotti relation and its significance in dielectrics.	8	2	3
OR					
4	a.	Define Magnetic susceptibility and give a classification of magnetic materials.	6	2	1
	b.	Describe the Hysteresis exhibited by Ferromagnetic materials and explain its using a suitable theory	8	2	3
UNIT-III					
5	a.	Give the selection procedure of the active medium of laser device.	6	3	2
	b.	With suitable diagrams, discuss the working principle, design and working of He – Ne laser system	8	3	3
OR					
6	a.	What is the significance of Numerical Aperture of an optical fiber and obtain an expression for it.	8	3	2
	b.	Discuss the sensor applications of optical fibers.	6	3	3
UNIT-IV					
7	a.	What is an intrinsic semiconductor and obtain an expression for the density of carriers.	8	4	3

	b.	Distinguish between direct and indirect band gap semiconductors and mention their applications.	6	4	2
OR					
8	a.	Discuss the Hall Effect in detail and explain its significance.	8	4	3
	b.	Distinguish between drift and diffusion current in semiconductors.	6	4	2
UNIT-V					
9	a.	Explaining Magnetostriction effect, describe how the ultrasonics can be produced.	8	5	3
	b.	Mention the applications of ultrasonics.	6	5	1
OR					
10	a.	How the nano materials can be produced by sol – gel method.	6.	5	3
	b.	Write about Carbon Nanotubes	4	5	2
	c.	Discuss some important applications of nanomaterials.	4	5	1



I B. Tech I Semester MODEL QUESTION PAPER

PROGRAMMING FOR PROBLEM SOLVING USING C

(Common to AIDS, CIC, CSE, ECE, IT, AIML & CSG)

Time: 3 Hrs.

Max. Marks:70

Answer any one Question from Each Unit

All questions carry equal Marks

M CO KL

UNIT-I

1	a.	What do you mean C Variable, C Constants? Explain in detail	7	1	1
	b.	Explain Expressions Precedence and Associativity in detail	7	1	2

OR

2	a.	Explain types of storage classes in C	7	1	2
	b.	Write the basic structure of C program and explain each and every step	7	1	2

UNIT-II

3	a.	Explain logical, bitwise operators with examples	7	2	2
	b.	Differentiate two-way selection and multi-way selection	7	2	2

OR

4	a.	What is the difference between Pre-test loop and Post-test Loop with an example	7	2	2
	b.	Discuss Event and Counter controlled loops	7	2	2

UNIT-III

5	a.	What is an Array? Define and initialize 1-D, 2-D Arrays	7	3	1
	b.	Write a program to evaluate the average of values in an Array	7	3	3

OR

6	a.	Explain declaration and initialization of Array of Strings	7	3	2
	b.	What is an Union? List the difference between Structures and Unions	7	3	1

UNIT-IV

7	a.	Explain the concept of Array of Pointers with example	7	4	2
	b.	With proper example explain different arithmetic operators on Pointers	7	4	2

OR

8	a.	Explain L and R values in C Language and how are they used in C Language	7	4	2
	b.	Discuss various Processor Commands	7	4	2

UNIT-V

9	a.	How to pass Array to a Function in C	7	5	2
	b.	Discuss the Types of Functions in C	7	5	2

OR

10	a.	What is Stream? Describe two different methods of creating a Stream-Oriented data file	7	5	1
	b.	Write a program to Copy contents from one File to another File	7	5	1



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Course Code: B20BS1201				
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)				R20
I B. Tech II Semester - MODEL QUESTION PAPER				
MATHEMATICS – II				
(FOURIER ANALYSIS AND PARTIAL DIFFERENTIAL EQUATIONS)				
(Common to AIDS, CE, CIC, CSE, ECE, EEE, IT , ME, AIML & CSG)				
TIME: 3 Hrs.		Max. Marks: 70 M		
Answer any One Question from Each Unit				
All questions carry equal marks				
	UNIT-I	M	CO	KL
1.a)	Determine the Fourier series for the function $f(t) = \begin{cases} -1, & -\pi < t < -\pi/2 \\ 0, & -\pi/2 < t < \pi/2 \\ 1, & \pi/2 < t < \pi \end{cases}$	7	1	3
b)	Determine Fourier series of the function $f(x) = 2x - x^2$ in $(0, 3)$ and hence deduce that $\frac{1}{1^2} - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \dots = \frac{\pi}{12}$.	7	1	3
OR				
2. a)	Determine Fourier series for the function $f(x)$ given by $f(x) = \begin{cases} 1 + \frac{2x}{\pi}, & \text{if } -\pi \leq x \leq 0 \\ 1 - \frac{2x}{\pi}, & \text{if } 0 \leq x \leq \pi \end{cases}$ and deduce that $\frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + \dots = \frac{\pi^2}{8}$.	7	1	3
b)	Determine the Half – Range cosine series for the function $f(x) = x^2$ in the range $0 \leq x \leq \pi$.	7	1	3
UNIT-II				
3.a)	Using the Fourier Sine Transform of e^{-ax} ($a > 0$), evaluate $\int_0^{\infty} \frac{x \sin kx}{a^2 + x^2} dx$.	7	2	3
b)	Using Fourier integral representation, establish that $\int_0^{\infty} \frac{\omega \sin \omega x}{1 + \omega^2} d\omega = \frac{\pi}{2} e^{-x}, \quad x > 0.$	7	2	3
OR				
4. a)	Determine the inverse Fourier sine transform $f(x)$ of $F_s(p) = \frac{p}{1+p^2}$.	7	2	3
b)	Using Parseval's Identity, establish that $\int_0^{\infty} \frac{x^2}{(1+x^2)^2} dx = \frac{\pi}{4}$.	7	2	3
UNIT-III				
5.a)	If $U = \tan^{-1} \frac{x^3 + y^3}{x-y}$ and $x U_x + y U_y = \sin 2U$, establish that	7	3	3

	$x^2U_{xx} + 2xy U_{xy} + y^2U_{yy} = 2\cos 3U \sin U.$			
b)	If $u = x^2 - 2y^2$, $v = 2x^2 - y^2$ where $x = r\cos \theta$, $y = r \sin \theta$ then establish that $\frac{\partial(u,v)}{\partial(r,\theta)} = 6 r^3 \sin 2\theta.$	7	3	3
OR				
6. a)	Develop $x^2y + 3y - 2$ in a Taylor series in powers of $(x - 1)$ and $(y + 2)$ using Taylor's theorem.	7	4	3
b)	By using the method of differentiation under the integral sign establish that $\int_0^\infty \frac{\tan^{-1}(ax)}{x(1+x^2)} dx = \frac{\pi}{2} \log(1+a)$, $a \geq 0.$	7	4	3
UNIT-IV				
7. a)	Solve $x^2(y-z)p + y^2(z-x)q = z^2(x-y).$	7	5	3
b)	solve $(D^2 - DD' - 2D'^2)z = (y-1)e^x.$	7	5	3
OR				
8. a)	Solve $x(y-z)p + y(z-x)q = z(x-y).$	7	5	3
b)	solve $(D + D' - 1)(D + 2D' - 3)z = 3x + 6y + 4.$	7	5	3
UNIT-V				
9.a)	Determine the solution of $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} = 0$ by the method of separation of variables.	7	6	3
b)	A tightly stretched elastic string of length L , fixed at its end points is initially in a position given by $u(x, 0) = u_0 \sin^3 \frac{\pi x}{L}$. If it is released from rest, determine the displacement at any subsequent time.	7	6	3
OR				
10.a)	Determine the solution of $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = 0$ by the method of separation of variables.	7	6	3
b)	A bar of conducting material of length π units is initially kept at a temperature $\sin x$. Determine the temperature at any subsequent time if the ends of the bar are held at zero temperature.	7	6	3

Course Code: B20 BS 1203					
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)				R 20	
I B. Tech II Semester - MODEL QUESTION PAPER					
APPLIED CHEMISTRY					
Common to CSE, CIC, ECE, IT & AIML					
Time: 3 Hrs.		Max. Marks:70			
Answer any one Question from Each Unit					
All questions carry equal Marks					
		M	CO	KL	
UNIT-I					
1	a.	Explain the mechanism of free radical Polymerization reaction with a suitable example.	7	1	2
	b.	Distinguish between thermoplastic and thermosetting resins	7	1	3
OR					
2	a.	What are conducting Polymers? Discuss the applications of conducting Polymers.	7	1	2
	b.	Write notes on Bu Na – S and Bu Na – N.	7	1	2
UNIT-II					
3	a.	Explain the Proximate analysis of coal and give its significance.	7	3	2
	b.	Explain Photovoltaic cell with neat diagram.	7	3	2
OR					
4	a.	Explain the fractional distillation of crude oil	7	3	2
	b.	How synthetic Petrol can be prepared by Berguis Process.	7	3	2
UNIT-III					
5	a.	Explain the mechanism of electrochemical theory of corrosion with neat diagram	7	2	2
	b.	Describe briefly about cathodic Protection.	7	2	3
OR					
6	a.	Explain Hydrogen – Oxygen fuel cell with neat cell diagram	7	4	2
	b.	Discuss about Lithium batteries	7	4	2
UNIT-IV					
7	a.	What is hardness? How it is determined by EDTA method? Explain	7	2	2
	b.	Describe with equations how water can be softened using Lime & Soda Process	7	2	2
OR					
8	a.	Discuss various sterilizing methods used in municipal water treatment	7	2	2
	b.	Illustrate the reverse osmosis Process with a neat diagram	7	2	2
UNIT-V					
9	a.	Discuss chemistry involved in setting and hardening of cement?	7	4	2

	b.	What are refractories? Discuss the classification of refractories.	7	4	2
OR					
10	a.	Write the engineering applications of Liquid Crystals.	7	3	2
	b.	Explain the stoichiometric defects in crystals.	7	3	2



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I B. Tech II Semester - MODEL QUESTION PAPER

DIGITAL LOGIC DESIGN

(Common to AIML & CIC)

Time: 3 Hrs.

Max. Marks:70

Answer any one Question from Each Unit

All questions carry equal Marks

		CO	KL	M	
UNIT – I					
1	a.	Explain various number systems and codes and their conversion with examples for each.	1	2	7
	b.	Simplify the Boolean expression to a minimum number of literals i) $ABC+A'B+ABC'$ ii) $XY+X(WZ+WZ')$	2	3	7
OR					
2	a.	Explain a 4-bit BCD adder-subtractor circuit using BCD adder and 9's complement	1	2	7
	b.	Distinguish between the truth tables of Boolean Associative law and distributive law.	3	2	7
UNIT – II					
3	a.	Discuss about basic theorems and properties of Boolean Algebra.	2	2	7
	b.	Simplify each of the following expressions i) $ab+a'bc'+bc$ ii) $(ab'+c)(a+b')c$	2	3	7
OR					
4	a.	Discuss 4-variable K-Map and define pair, quad and octet mapping in K-Map.	4	2	7
	b.	Obtain the simplified expression in product of sums a) $F(A,B,C,D)=\pi(0,1,2,3,4,10,11)$ b) $F(A,B,C,D)=\pi(1,3,5,7,13,15)$	3	3	7
UNIT – III					
5	a.	Design half adder using only NAND gates	3	3	7
	b.	Explain a Full subtractor using decoders.	2	2	7
OR					
6	a.	Define a Multiplexer? Draw a 4:1 multiplexer for the function $F(a,b,c,d)=\sum(0,4,5,10,11,12,15)$	3	3	7

	b.	Explain the working of a PLA with a schematic and implement the following two Boolean functions with a PLA $F1(A,B,C)=\sum(0,1,3,5)$ and $F2(A,B,C)=\sum(0,5,6,7)$	3	3	7
UNIT – IV					
7	a.	Discuss the block diagram of synchronous sequential circuit.	4	2	7
	b.	Analyse latch with NOR gates, derive transition, flow and state tables.	4	4	7
OR					
8	a.	Design the operation of a JK Flip-Flop with the truth table.	4	3	7
	b.	Convert a D Flip Flop into SR Flip- Flop and JK Flip – Flop.	4	3	7
UNIT – V					
9	a.	Explain applications of shift Registers	5	2	7
	b.	Explain binary Ripple counter with circuit diagram.	5	2	7
OR					
10	a.	Explain Johnson counter with circuit diagram.	5	2	7
	b.	Design and Explain basic difference between a shift register and counter.	5	3	7



Course Code: B20AM1202

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

R 20

I B. Tech II Semester Regular Examinations

PYTHON PROGRAMMING

(Common to AIML & CIC)

Time: 3 Hrs.

Max. Marks:70

Answer any one Question from Each Unit

All questions carry equal Marks

			CO	KL	M
UNIT-I					
1	a.	Explain the basic data types available in Python with examples.	1	2	6
	b.	List and explain all the operators available in python.	1	2	8
OR					
2	a.	Illustrate the different types of control flow statements in Python	1	2	8
	b.	Write a program to display the fibonacci sequence up to nth term	1	3	6
UNIT-II					
3	a.	Write Python program to count the total number of vowels, consonants and blanks in a String.	2	3	6
	b.	Compare mutable and Immutable data types in Python with suitable examples.	2	2	8
OR					
4	a.	Explain List operations available in python.	2	2	8
	b.	Write a program to Display both the keys and values sorted in alphabetical order by the key.	2	3	6
UNIT-III					
5	a.	Explain the concept of accessibility of variables in nested functions.	3	2	8
	b.	Define a function that calculates the sum of all numbers from 0 to its argument.	3	3	6
OR					
6	a.	What are modules, how do you use them in your programs.	3	2	6
	b.	Write a short note on i) Keyword Arguments ii) Lambda Functions.	3	2	8
UNIT-IV					
7	a.	Discuss the following methods associated with the file object a) read() b) readline() c) readlines() d) tell() e) seek() f) write().	4	2	8
	b.	Write Python Program to Count the Number of Words in a given file.	4	3	6

OR					
8	a.	Explain the concept of class methods and static methods with examples.	4	2	6
	b.	Write Python Program to Demonstrate Multiple Inheritance with Method Overriding.	4	3	8
UNIT-V					
9	a.	What is the difference between else block and finally block in exception handling? Explain with an example program.	5	3	7
	b.	Discuss in detail about Scrolling list boxes.	5	2	7
OR					
10	a.	Explain in detail about User defined exceptions.	5	2	7
	b.	Explain about command buttons and Responding to events.	5	2	7



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Course Code: B20AM1203							
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					R 20		
I B. Tech II Semester Regular Examinations							
DATA STRUCTURES							
(Common to AIML & CIC)							
Time: 3 Hrs.			Max. Marks:70				
Answer any one Question from Each Unit							
All questions carry equal Marks							
					CO	KL	M
UNIT-I							
1	a.	Illustrate the representation of polynomials using Abstract Data Type	1	2	7		
	b.	Apply Insertion sort algorithm to sort the following elements. 12,4,1, 15, 7,8, 20,13,18	4	3	7		
OR							
2	a.	Explain Fibonacci search with suitable example.	1	2	7		
	b.	Sort the following list of elements using Quick Sort. 10,6,7,3,26,17,55,28,75	4	3	7		
UNIT-II							
3	a.	Define stack ADT. Explain basic operations of a stack ADT.	2	2	7		
	b.	Convert following expression $X+(Y*Z)-((N*M+O)/P)$ in to postfix form	3	3	7		
OR							
4	a.	What is a circular Queue. Explain insertion and deletion operations on a circular queue.	2	2	7		
	b.	Write an Algorithm for evaluating a postfix expression using stack. Evaluate the following postfix notation 5 6 2+ *8 4 / -	3	3	7		
UNIT-III							
5	a.	Show the following operations on a singly linked list. i) Reversing a singly linked list ii) Concatenation of two lists	2	2	7		
	b.	Make use of Radix sort for sorting list of integers	4	3	7		
OR							
6	a.	Develop an algorithm to insert an element and delete an element anywhere from doubly linked list.	2	2	7		
	b.	Make use of singly linked list to find sum and product of two polynomials.	3	3	7		
UNIT-IV							
7	a.	Construct a Binary search tree (BST) with the following keys. 86,12,42,69,38,57,74,5,45,73,10.	2	3	8		

		Delete node 12 from the constructed binary search tree and reconstruct it.			
	b.	Demonstrate different ways of representing Binary trees in memory.	1	2	6
OR					
	a.	Construct a max heap for the following elements. 140,80,20,30,10,40,60,100,70,105,25,38,150	2	3	6
	b.	Write an algorithm for Heap sort and Apply Heap sort on the following numbers 42, 89, 63, 11, 97, 26, 77,1,45, 36	4	3	8
UNIT-V					
9	a.	Explain how graphs are represented in memory with an example	1	2	6
	b.	What is Minimum Spanning tree? Apply Prim's algorithm on the following Graph to determine minimum spanning tree.	5	3	8
OR					
10	a.	Apply breadth first search(BFS) on the following graph.	5	3	7
	b.	Explain about all pairs shortest path algorithm.	5	2	7