				Course Code: B20HS1101

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)	**R 20**

I B. Tech I Semester –MODEL PAPER

ENGLISH

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

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

Answer any one Question from EACH UNIT.

All questions carry equal marks.

			CO	KL	M
		UNIT-I			
1	**a.**	Compose an essay on "A Drawer full of happiness".	2	K3	7
	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.	5	K3	7
		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	2	K3	7
	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? 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.	4	K3	7

		UNIT-II			
3	a.	Compose an essay on the relevance of Nehru's letter to Indira to the present context.	2	K3	7
	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	5	K3	7
		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.	2	K3	7
	b.	Write meanings and bring out the difference in usage for any FOUR of the following homonyms. i) Affect/Effect ii) Continuous/ Continual iii) Veracious/Voracious iv) Facilitate/Felicitate iv) Apposite/Opposite v) Intelligent/ Intelligible	5	K3	7
		UNIT-III			
5	a.	Compose an essay on "Stephen Hawking – Positivity 'Benchmark'.	2	K3	7
	b.	Draft a letter to the educational consultancy asking about the information regarding the post-graduation and research programmes in foreign universities.	4	K3	7
		OR			
6	a.	Write an E-mail to the manufacturer complaining about the computer that you bought recently.	4	K3	7
	b.	Draft a resume and covering letter for the post of a software engineer.	4	K3	7
		UNIT-IV			
7	a.	Summarize the essay "Liking a Tree, Unbowed"?	2	K3	7
	b.	Give the meaning and write sentences of any SEVEN of the following FOREIGNPHRASES. i) abinitio ii) a la mode iii) siesta iv) amour proper v) ad hoc vi) Alma Mater vii) alter ego viii) bonafide	5	K3	7
		OR			
8	a.	Write a pamphlet on book exhibition/ tour.	2	K3	7

	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)	5	K3	7

UNIT-V

9	a.	Elaborate the message which the author communicates to the readers through the lesson "Stay Hungry-Stay Foolish".	2	K3	7
	b.	Correct and Re-construct any SEVEN of the following Sentences. i) One must use his best efforts if he wishes to succeed. 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.	5	K3	7

OR

10	a.	Compile a report to the editor about the problem of brain drain in India	4	K3	7
	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	2	K3	7

		Course Code: B20BS1101	
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)		R20	

I B.Tech I Semester –MODEL PAPER

MATHEMATICS – I

(LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS)

Common to AIDS, CE, 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	CO	KL	M
1.a)		Solve the system of equations $20x + y - 2z = 17, 3x + 20y - z = -18,$ $2x - 3y + 20z = 25$ by Gauss –Siedel method.	CO1	K3	7
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.	CO1	K3	7
		(OR)			
2. a)		Solve the system of equations 10x + y+z =12, 2x+10y+z =13, 2x+2y+10z =14 by Gauss- elimination method.	CO1	K3	7
b)		Define rank and determine the rank of the matrix A by reducing it to its normal form where A is: $A = \begin{bmatrix} 2 & 3 & -1 & -1 \\ 1 & -1 & -2 & -4 \\ 3 & 1 & 3 & -2 \\ 6 & 3 & 0 & -7 \end{bmatrix}.$	CO1	K3	7
		UNIT-II			
3.a)		Verify Cayley-Hamilton theorem and use the theorem to determine the inverse of the matrix $A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & -1 \\ 1 & -1 & 1 \end{bmatrix}.$	CO2	K3	7
b)		Reduce the quadratic form $2x^2 + 2y^2 + 2z^2 - 2xy - 2yz - 2zx$ to canonical form by the use of an orthogonal transformation.	CO2	K3	7
		(OR)			
4. a)		Determine the Eigenvalues and the corresponding Eigen vectors of the matrix $A = \begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}.$	CO2	K3	7
b)		If A $= \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$, use Cayley-Hamilton theorem to determine the value of $2A^5 - 3A^4 + A^2 - 4$ I. Also determine the inverse of A.	CO2	K3	7

	UNIT-III			
5.a)	Solve $\frac{dy}{dx} + (\tan x)\, y = (\sec x)\, y^3$.	CO3	K3	7
b)	Solve $(y^4 + 2y)dx + (xy^3 + 2y^4 - 4x)dy = 0$.	CO3	K3	7
	OR			
6. a)	Determine the orthogonal trajectories of the family of parabolas $ay^2 = x^3$.	CO4	K3	7
b)	A body originally at $80^0 C$, cools down to $60^0 C$ in 20 minutes, the temperature of air being $40^0 C$. Determine the temperature of the body after 40 minutes from the original?	CO4	K3	7
	UNIT-IV			
7.a)	Solve $(D^3 - D)y = 2x + 1 + 4\cos x$.	CO5	K3	7
b)	Solve $\frac{d^2 y}{dx^2} - 2\frac{dy}{dx} + y = e^x \log x$ by the method of variation of parameters.	CO5	K3	7
	OR			
8. a)	Solve $(D^2 + 3D + 2)y = e^{e^x}$.	CO5	K3	7
b)	Use method of variation of parameters to solve the equation $\frac{d^2 y}{dx^2} + y = cosec\ x$.	CO5	K3	7
	UNIT-V			
9.a)	Determine $L\{t cos at\}$ and $L\left\{\int_0^t e^{-t}\cos t\, dt\right\}$.	CO6	K3	7
b)	Using convolution theorem evaluate $L^{-1}\{\frac{1}{(s+a)(s+b)}\}$.	CO6	K3	7
	OR			
10. a)	Determine $L^{-1}\{\frac{5s+3}{(s-1)(s^2+2s+5)}\}$.	CO6	K3	7
b)	Solve $\frac{d^2 y}{dt^2} + 4\frac{dy}{dt} + 3y = e^{-t}$, $y(0) = y'(0) = 1$ by using Laplace transforms.	CO6	K3	7

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			Course Code:B20BS1110

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)		**R 20**
I B. Tech II Semester Model Question Paper		
BIOLOGY FOR ENGINEERS		
(for CSG)		

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.	Define the term biology and discuss the scope and importance of Biology in Engineering	1	2	7
	b.	Explain how biological observations led to major discoveries in the past?	1	2	7
		OR			
2	a.	Write about any 5 human genetic diseases.	1	2	7
	b.	Elucidate the significance of biological data.	1	2	7
		UNIT-II			
3	a.	Differentiate the prokaryotic and eukaryotic cells.	2	2	7
	b.	Describe the body organisation of living organisms.	2	2	7
		OR			
4	a.	What is a virus? Discuss about viral diseases in the human population.	2	2	7
	b.	Explain the classification of the living world.	2	2	7
		UNIT-III			
5	a.	What are proteins? Explain the structure and function of proteins.	3	2	7
	b.	Discuss the important molecules of life.	3	2	7
		OR			
6	a.	What are nucleic acids? Explain the structure and functions of nucleic acids?	3	2	7
	b.	What are enzymes? Write about the classification of enzymes.	3	2	7
		UNIT-IV			
7	a.	Explain the laws of thermodynamics applied to biological systems.	4	2	7
	b.	Discuss 'ATP' as an energy currency of life.	4	2	7
		OR			

8	a.	Discuss the important phases of Photosynthesis.	4	2	7
	b.	Explain the mechanism of cellular respiration in living organisms.	4	2	7
		UNIT-V			
9	a.	What is Cell Cycle? Write about the phases of cell cycle.	5	2	7
	b.	Distinguish between Mitosis and Meiosis Cell Division.	5	2	7
		OR			
10	a.	Describe the gene functioning mechanism.	5	2	7
	b.	Write about mutations and their significance.	5	2	7

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			Course Code: B20 CS 1101		
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)	**R 20**		
		I B. Tech I Semester MODEL QUESTION PAPER			
		PROGRAMMING FOR PROBLEM SOLVING USING C			
		(Common to AIDS, CSE , ECE ,IT, AIML & CSG)			
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.	What do you mean C Variable, C Constants? Explain in detail	CO1	K1	7M
	b.	Explain Expressions Precedence and Associativity in detail	CO1	K2	7M
		OR			
2	a.	Explain types of storage classes in C	CO1	K2	7M
	b.	Write the basic structure of C program and explain each and every step	CO1	K2	7M
		UNIT-II			
3	a.	Explain logical, bitwise operators with examples	CO2	K2	7M
	b.	Differentiate two-way selection and multi-way selection	CO2	K2	7M
		OR			
4	a.	What is the difference between Pre-test loop and Post-test Loop with an example	CO2	K2	7M
	b.	Discuss Event and Counter controlled loops	CO2	K2	7M
		UNIT-III			
5	a.	What is an Array? Define and initialize 1-D, 2-D Arrays	CO3	K1	7M
	b.	Write a program to evaluate the average of values in an Array	CO3	K3	7M
		OR			
6	a.	Explain declaration and initialization of Array of Strings	CO3	K2	7M
	b.	What is an Union? List the difference between Structures and Unions	CO3	K1	7M
		UNIT-IV			
7	a.	Explain the concept of Array of Pointers with example	CO4	K2	7M
	b.	With proper example explain different arithmetic operators on Pointers	CO4	K2	7M
		OR			
8	a.	Explain L and R values in C Language and how are they used in C Language	CO4	K2	7M

	b.	Discuss various Processor Commands	CO4	K2	7M
		UNIT-V			
9	a.	How to pass Array to a Function in C	CO5	K2	7M
	b.	Discuss the Types of Functions in C	CO5	K2	7M
		OR			
10	a.	What is Stream? Describe two different methods of creating a Stream-Oriented data file	CO5	K1	7M
	b.	Write a program to Copy contents from one File to another File	CO5	K1	7M

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SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)	**R 20**

I B. Tech II Semester - MODEL QUESTION PAPER

DIGITAL LOGIC DESIGN

For CSG

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).	i. Convert $(1032.2)4$ to decimal. ii. Perform the subtraction using 2's complement 100-110000	C1	K3	7M
	b).	Reduce the Boolean Functions to minimum number of literals (i) ABC+A1B 1C+A1BC+ABC1 +A1B 1C 1 to five literals (ii) (A+C+D)(A+C+D1)(A+C1 +D)(A+B1) to four literals	C1	K3	7M
		OR			
2.	a).	Convert the function to another canonical form. $F(x,y,z)=\pi(0,3,6,7)$	C1	K3	7M
	b).	Implement the Boolean function F=xy+x1y1+y1z with (i) AND ,OR and NOT gates (ii) OR,NOT gates (iii) AND, NOT gates	C1	K4	7M
		UNIT - II			
3.	a).	Simplify the Boolean Function using K-Map. $F(A,B,C,D)=ACE+A^1CD^1E+A^1C^1DE$ $D(A,B,C,D)=DE^1+A^1D^1E+AD^1E^1$	C2	K3	7M
	b).	Design and explain Binary Adder/ Subtractor.	C2	K3	7M
		OR			
4.	a).	Simplify the Boolean Function to product of sums. $F(A,B,C,D)= \pi(0,1,2,3,4,10,11)$	C2	K2	7M
	b).	Design and explain Decimal Adder.	C2	K3	7M
		UNIT - III			
5.	a).	Design and explain about JK Flip flop.	C3	K3	7M
	b).	Explain about State Reduction and Assignment with example.	C3	K2	7M
		OR			
6.		Explain about design procedure of sequential circuits with an example	C3	K4	14M
		UNIT - IV			
7.	a).	Design and explain about Shift Register.	C4	K3	7M
	b).	Design and explain about BCD Ripple counter.	C4	K3	7M
		OR			
8.	a).	Design and explain about Universal Shift Register.	C4	K3	7M
	b).	Design and explain about Synchronous Binary counter.	C4	K3	7M
		UNIT – V			
9.	a).	Explain about Memory decoding of RAM.	C5	K2	7M
	b).	Explain about ROM Variants	C5	K2	7M
		OR			
10.	a).	Explain PLA and PAL	C5	K2	7M
	b).	Explain about Hamming code with an example	C5	K2	7M

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, 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	CO	KL	M
1.a)	Determine the Fourier series for the function $f(t) = \begin{cases} -1, & -\pi < t < -\pi/2 \\ 0, & -\pi/2 < t < \pi/2 \\ 1, & \pi/2 < t < \pi \end{cases}$	CO1	K3	7
7	Determine Fourier series of the function $f(x) = 2x - x^2$ in $(0, 3)$ and hence deduce that $\frac{1}{1^2} - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \cdots = \frac{\pi}{12}$.	CO1	K3	7
	OR			
2. a)	Determine Fourier series for the function f(x) given by $f(x) = \begin{cases} 1 + \frac{2x}{\pi}, & \text{if } -\pi \le x \le 0 \\ 1 - \frac{2x}{\pi}, & \text{if } 0 \le x \le \pi \end{cases}$ and deduce that $\frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + \cdots = \frac{\pi^2}{8}$.	CO1	K3	7
b)	Determine the Half – Range cosine series for the function $f(x) = x^2$ in the range $0 \le x \le \pi$.	CO1	K3	7
	UNIT-II			
3.a)	Using the Fourier Sine Transform of e^{-ax} (a> 0), evaluate $\int_0^\infty \frac{x \sin kx}{a^2 + x^2} \, dx$.	CO2	K3	7
b)	Using Fourier integral representation, establish that $\int_0^\infty \frac{\omega \sin \omega x}{1 + \omega^2} d\omega = \frac{\pi}{2} e^{-x}, \; x > 0$.	CO2	K3	7
	OR			
4. a)	Determine the inverse Fourier sine transform f(x) of $F_s(p) = \frac{p}{1+p^2}$.	CO2	K3	7
b)	Using Parseval's Identity, establish that $\int_0^\infty \frac{x^2}{\left(1+x^2\right)^2} \, dx = \frac{\pi}{4}$.	CO2	K3	7
	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 $x^2 U_{xx} + 2xy U_{xy} + y^2 U_{yy} = 2\cos 3U \sin U$.	CO3	K3	7
b)	If $u = x^2 - 2y^2$, $v = 2x^2 - y^2$ where $x = r\cos\theta$, $y = r \sin\theta$ then establish that $\frac{\partial(u,v)}{\partial(r,\theta)} = 6 r^3 \sin 2\theta$.	CO3	K3	7

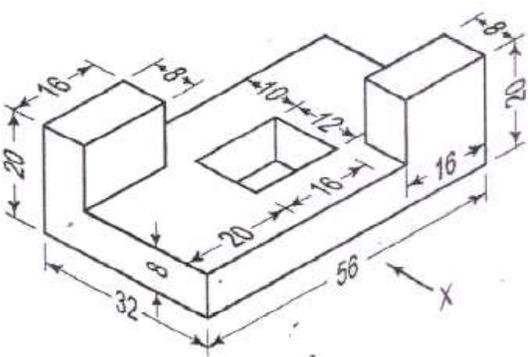|	**OR**			
6. a)	Develop $x^2 y + 3y - 2$ in a Taylor series in powers of $(x-1)$ and $(y+2)$ using Taylor's theorem.	CO4	K3	7
b)	By using the method of differentiation under the integral sign establish that $\int_0^\infty \frac{\tan^{-1}(ax)}{x(1+x^2)}\, dx = \frac{\pi}{2} \log(1+a)$, $a \geq 0$.	CO4	K3	7
	UNIT-IV			
7. a)	Solve $x^2(y-z)p + y^2(z-x)q = z^2(x-y)$.	CO5	K3	7
b)	solve $(D^2 - DD' - 2D'^2) z = (y-1)e^x$.	CO5	K3	7
	OR			
8. a)	Solve $x(y-z)p + y(z-x)q = z(x-y)$.	CO5	K3	7
b)	solve $(D + D' - 1)(D + 2D' - 3)z = 3x + 6y + 4$.	CO5	K3	7
	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.	CO6	K3	7
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.	CO6	K3	7
	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.	CO6	K3	7
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.	CO6	K3	7

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SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)				**R 20**
I B. Tech II Semester - MODEL QUESTION PAPER				
APPLIED PHYSICS				
(Common to CSE, ECE ,IT,AIML & CSG)				

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

		UNIT-V			
9	a.	Explaining Magnetostriction effect, describe how the ultrasonics can be produced.	5	3	8
	b.	Mention the applications of ultrasonics.	5	1	6
		OR			
10	a.	How the nano materials can be produced by sol – gel method.	5	3	6
	b.	Write about Carbon Nanotubes	5	2	4
	C.	Discuss some important applications of nanomaterials.	5	1	4

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SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)				**R 20**	
I B. Tech II Semester Regular Examinations					
PYTHON PROGRAMMING					
(for CSG)					

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.	List the salient features of python programming language.	CO1	K1	7
	b.	Explain about various data types in Python.	CO1	K1	7
		OR			
2	a.	Discuss about functions in python.Write a python function to check whether the given string is palindrome or not.	CO1	K1	7
	b.	Write Pythonic code to solve the quadratic equation $ax**2 + bx + c = 0$ by getting input for coefficients from the user.	CO1	K2	7
		UNIT-II			
3	a.	Explain various looping statements in python with syntax , flow chart and example.	CO2	K1	7
	b.	Demonstrate usage of while loop in python to maintain a running total.	CO2	K2	7
		OR			
4	a.	Illustarte the process of Data Encryption with a sample program	CO2	K2	7
	b.	Explain any 5 string methods in Python with syntax and example.	CO2	K1	7
		UNIT-III			
5	a.	What is list? Explain the concept of slicing and indexing with proper examples	CO3	K2	7
	b.	For a given list num=[45,22,14,65,97,72], write a python program to replace all the integers divisible by 3 with "ppp" and all integers divisible by 5 with "qqq" and replace all the integers divisible by both 3 and 5 with "pppqqq" and display the output.	CO3	K3	7
		OR			
6	a.	What is dictionary? Illustrate the usage of nested dictionary with an example program.	CO3	K2	7

	b.	Use 'update' method or '**' to merge two dictionaries.	CO3	K3	7
		UNIT-IV			
7	a.	Explain in detail about file reading/writing process with a sample python program.	CO4	K2	7
	b.	How to define , initiate and access members of class in python ? Illustarte with an example.	CO4	K2	7
		OR			
8	a.	Define polymorphism. Demonstrate polymorphism with function to find histogram to count the numbers of times each letters appears in a word and in sentence.	CO4	K3	7
	b.	Write a python program that uses datetime module within a class, takes a birthday as input and prints the age and the number of days, hours, minutes and second.	CO4	K2	7
		UNIT-V			
9	a.	Differentiate Error and Exception . Illustrate exception handling concept with a sample program.	CO5	K2	7
	b.	Explain user defined exception with a sample program.	CO5	K2	7
		OR			
10	a.	Differentiate the behavior of Terminal Based and GUI – Based Programs.	CO5	K2	7
	b.	Write a python program to perform addition using GUI.	CO5	K2	7

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)	R20

I B.Tech. II Semester MODEL QUESTION PAPER

DESIGN DRAWING AND VISUALIZATION

For CSG

Time: 3 Hrs				Max. Marks: 70 M

Answer ONE Question from EACH UNIT

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
		UNIT-I			
1.		Construct a parabola when the distance of the focus from directrix is 50mm. Also draw the tangent and normal at any point on the curve.	1	3	14
		OR			
2.		An inelastic string 145 mm long has its one end attached to the circumference of a circular disc of 40 mm diameter. Draw the curve traced out by the other end of the string, when it is completely wound around the disc, keeping the string always tight.	1	3	14
		UNIT-II			
3.	(a)	Draw the projections of the following points on the same ground line, keeping the projectors 25mm apart. (i) Point A in the HP and lying 20mm behind the VP; (ii) Point B is 40mm above the HP and 25mm in front of the VP; (iii) Point C is 25mm below the HP and 25mm behind the VP; (iv) Point D is 15mm above the HP and 50mm behind the VP.	2	3	7
	(b)	Draw the projections of a 75mm long straight line in the following positions: (i) parallel to and 30mm above the HP and in the VP; (ii) perpendicular to the VP, 25mm above the HP and its one end in the VP; (iii) Inclined at 30^0 to the HP and its one end 20mm above it, parallel to and 30mm in front of the VP.	2	3	7
		OR			
4.		A line AB, of 80 mm long has its end A, 15 mm in front of VP and 20 mm above HP. The other end B is 40 mm above HP and 50 mm in front of VP. Draw the projections of the line and determine the inclinations of the line with HP and VP.	2	3	14
		UNIT-III			
5.		Draw a rhombus of diagonals 100 mm and 60 mm long, with the longer diagonal horizontal. The figure is the top view of a square of 100mm long diagonals, with a corner on the ground. Draw its front view and Determine the angle which its surface makes with the ground.	3	3	14

	OR			
6.	A hexagonal pyramid, base 25mm side and axis 50mm long, has an edge of its base on the ground. Its axis is inclined at 30^0 to the ground and parallel to the VP. Draw its projections.	3	3	14
	UNIT-IV			
7.	A square pyramid has its base side 40mm and height 60mm. Draw the isometric projection of the pyramid when the axis of the solid is horizontal and vertical.	4	3	14
	OR			
8.	Draw the orthographic view of the object shown in Figure 1. All Dimensions are in mm Figure 1	4	3	14
	UNIT-V			
9.	An equilateral triangular plane of side 50 mm is resting on the ground such that the nearest corner of the plane is 10 mm behind PP with an edge containing that corner is inclined at 20^0 to PP. The station point is 40 mm in front of PP, 50 mm above GP and lies on a central plane 30 mm to the left of the corner. Draw the perspective projection.	5	3	14
	OR			
10.	A cube of side 50 mm is resting on the ground on one of its faces with a vertical face on PP and rest behind it. The central plane is located 60 mm to the left of axis of the cube. The station point is 50 mm in front of PP and 70 mm above GP. Draw the perspective view of solid.	5	3	14

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R 20**	
I B. Tech II Semester Regular Examinations				
DATA STRUCTURES				
(Common to CSE & CSG)				

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 representation of array as an ADT along with their advantages and disadvantages.	CO1	K3	7M
	b.	Arrange the following list of elements in ascending order using Merge Sort A, L, G, O, R, I, T, H, M, S Clearly show the sorting process at each step.	CO1	K2	7M
		OR			
2	a.	Write ADT operations for array implementation of polynomial addition.	CO1	K2	7M
	b.	Sort the elements using Quick Sort: 52, 38, 81, 22, 48, 13, 69, 93, 14, 45, 58, 79, 72.	CO1	K3	7M
		UNIT-II			
3	a.	Define stack ADT. Explain basic operations of a stack ADT.	CO2	K3	7M
	b.	Convert the given infix Expression ((A+B)*C-(D-E)^(F+G)) into its Equivalent Prefix and Postfix Notations.	CO2	K3	7M
		OR			
4	a.	Explain the procedure to evaluate postfix expression 6 2 3 + - 3 8 2 / + * 2 4 3 +.	CO2	K3	7M
	b.	Discuss about implementation of queues using linked list	CO2	K3	7M
		UNIT-III			
5	a.	Compare singly and circular linked list while performing insertion and deletion operations	CO3	K4	7M
	b.	Explain polynomial multiplication using linked list with an example.	CO3	K3	7M
		OR			
6	a.	List various operations of linked list and explain how to insert a node anywhere in the list.	CO3	K2	7M
	b.	Explain various operations performed on doubly Linked Lists	CO3	K3	7M
		UNIT-IV			
7	a.	Sketch the binary search tree resulting after inserting the following integer keys 49, 27, 12, 11, 33, 77, 26, 56, 23, 6. i) Check whether the tree is almost complete or not? ii) Determine the height of the tree iii) Write post order and preorder traversals	CO4	K3	7M
	b.	Create max heap for the following elements 33, 14, 65, 02, 76, 69, 59, 85, 47, 99, 98.	CO4	K3	7M
		OR			
8	a.	A binary tree has seven nodes. The Preorder and Postorder traversal of the tree are	CO4	K3	7M

		given below. Can you draw the tree? Justify. Preorder : GFDABEC Postorder : ABDCEFG			
	b.	Write in-order, pre-order and post-order traversal of a binary tree.	CO4	K2	7M
UNIT-V					
9	a.	What is minimum cost spanning tree? Discuss with an example.	CO5	K2	7M
	b.	Explain Dijkstras Algorithm with an example	CO5	K3	7M
OR					
10	a.	Discuss Kruskal's algorithm advantages and disadvantages.	CO5	K3	7M
	b.	Discuss the Representation of Graphs.	CO5	K2	7M