[B19 HS 1101]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE(A)

I B. Tech I Semester (R19) Regular Examinations

ENGLISH

(Common to CE,CSE,EEE,IT & MECH)

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

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			CO	KL	M
		UNIT-I			
1.	**a).**	Write an essay on "A Drawer full of happiness".	2	K2	8
	b).	Develop the following hints into meaningful paragraphs (200 words) and provide a suitable title. Life- full of challenges - man accept realities - he to know - weaknesses and strongholds - ignorance of one's weaknesses take him nowhere - knowing and acknowledging this before making use of strongholds or virtues he must get rid of weaknesses - otherwise his voyage be stumbled - he plug the holes lest he be drowned.	4	K3	7
		OR			
2.	**a).**	Write an essay on any ONE of the following. i) Pros and cons of Social Networking Sites ii) The essence of education	4	K4	**8**
	b).	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	K1	**7**
		UNIT-II			
3.	**a).**	Write an essay on the relevance of Nehru's letter to Indira to the present context.	2	K2	8
	b).	Fill in the blanks with appropriate articles/ prepositions. i) Role-play is a good way ______ creating real life situations. ii) He is popular ______ his contemporaries. iii) I hope it is ______ holiday resort. iv) As ____ matter of fact, I have ____ interview tomorrow. v) Finally, a word _____ what our countrymen can do to the nation. vi) A nation is a complex society ____ corresponding variations in culture.	5	K1	**7**
		OR			

4.	**a).**	Write 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.	4	K6	**8**
	b).	Write antonyms and 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	K2	**7**
		UNIT-III			
5.	**a).**	Write an essay on "Stephen Hawking – Positivity 'Benchmark'.	2	K2	8
	b).	Write 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 a resume and the covering letter for the post of a software engineer.	4	K3	**8**
	b).	Write an E-mail to the manufacturer complaining about the computer that you bought recently.	4	K3	**7**
		UNIT-IV			
7.	**a).**	What does the author speak about "Liking a Tree, Unbowed"?	2	K2	8
	b).	Give the meaning and write sentences of any SEVEN of the following foreign phrases. i) ab initio ii) a la mode iii) sieta iv) amour proper v) ad hoc vi) Alma Mater vii) alter ego viii) bonafide	5	K2	**7**
		OR			
8.	**a).**	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	2	K2	**8**

		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 neighboring 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.			
	b).	Write a pamphlet on book exhibition.	4	K6	**7**
		UNIT-V			
9.	**a).**	What message does the author communicate to the readers through the lesson "Stay Hungry-Stay Foolish".	2	K2	8
	b).	Correct and Re-write 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 behavior. viii) She gave me many informations.	5	K2	**7**
		OR			
10.	**a).**	Write a report to the editor about the problem of brain drain in India	4	K3	**8**
	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.	5	K4	**7**

		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			

[B19 BS 1101]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech I Semester (R19) Regular Examinations

MATHEMATICS – I

(Common to All Branches)

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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	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	K2	8
b)	Investigate the values of λ and μ so that the equations $2x + 3y + 5z = 9$; $7x + 3y - 2z = 8$; $2x + 3y + \lambda z = \mu$; has (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	K2	8
b)	Define rank and find the rank of the matrix A by reducing it in 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	K1	7
	UNIT-II			
3.a)	Verify Cayley-Hamilton theorem and find the inverse of the matrix $A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & -1 \\ 1 & -1 & 1 \end{bmatrix}$.	CO2	K3	8
b)	Reduce the quadratic form $2x^2 + 2y^2 + 2z^2 - 2xy - 2yz - 2zx$ to canonical form by orthogonal transformation	CO2	K3	7
	(OR)			
4. a)	Find 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	8
b)	If A $= \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$, use Cayley-Hamilton theorem to find the value of $2A^5 - 3A^4 + A^2 - 4I$. Also find the inverse of A.	CO2	K3	7

	UNIT-III			
5.a)	Solve $\frac{dy}{dx} + (\tan x)\, y = (\sec x)\, y^3$.	CO3	K2	8
b)	Find the orthogonal trajectories of the family of parabolas $ay^2 = x^3$.	CO3	K3	7
(OR)				
6. a)	Solve $(y^4 + 2y)dx + (xy^3 + 2y^4 - 4x)dy = 0.$	CO4	K2	8
b)	A body originally at 80^0C cools down to 60^0C in 20 minutes, the temperature of air being40^0C. What will be 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	K2	8
b)	Solve $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = e^x \log x$ by the method of variation of parameters.	CO5	K2	7
(OR)				
8. a)	Solve $(D^2 + 3D + 2)y = e^{e^x}$.	CO5	K2	8
b)	Solve the differential equation $x^2\frac{d^2y}{dx^2} - x\frac{dy}{dx} + y = \log x$	CO5	K2	7
	UNIT-V			
9.a)	Find $L\{tcosat\}$ and $L\left\{\int_0^t e^{-t}\cos t\, dt\right\}$.	CO6	K2	8
b)	Using convolution theorem evaluate $L^{-1}\{\frac{1}{(s+a)(s+b)}\}$.	CO6	K3	7
(OR)				
10.a)	Find $L^{-1}\{\frac{5s+3}{(s-1)(s^2+2s+5)}\}$.	CO6	K2	8
b)	Solve $\frac{d^2y}{dt^2} + 4\frac{dy}{dt} + 3y = e^{-t}$, $y(0) = y'(0) = 1$ by using Laplace transforms	CO6	K3	7

[B19 BS 1102]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech I Semester (R19) Regular Examinations

MATHEMATICS – II

(Common to CSE, ECE & IT)

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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	UNIT-I	**CO**	**KL**	**M**
1.a)	Using 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	CO3	K2	8
b)	Find the interpolating polynomial f(x) for the data of the following table x: 0, 1, 4, 5 f(x): 4, 3, 24, 39	CO3	K1	7
	(OR)			
2. a)	Using Gauss backward formula, find f(42), from the following table X: 20, 25, 30, 35, 40, 45 f(x): 354, 332, 291, 260, 231, 204	CO4	K2	8
b)	Using Lagrange's interpolation formula find Y (10) from the following table x: 5, 6, 9, 11 Y: 12, 13, 14, 16	CO4	K3	7
	UNIT-II			
3.a)	Find the cube root of 41 using Newton-Raphson method.	CO5	K2	8
b)	Evaluate $\int_0^2 \frac{dx}{x^3+x+1}$ by using Simpsons 1/3rd rule with $h = 0.25$	CO5	K2	7
	(OR)			
4. a)	Find a real root of the equation x $\log_{10}$ x=1.2 by Regula-false method correct tothree decimal places	CO5	K2	8
b)	Evaluate $y(0.8)$ using Runge Kutta method given $y' = (x+y)^{\frac{1}{2}}, y(0.4) = 0.41$	CO5	K3	7
	UNIT-III			
5.a)	If $U = \tan^{-1}\frac{x^3+y^3}{x-y}$ and $x U_X + y U_y = \sin 2U$, prove that $x^2U_{xx} + 2xy\, U_{xy} + y^2U_{yy} = 2\cos 3U \sin U$.	CO1	K2	8

b)	If u = $x^2 - 2y^2$, v = $2x^2 - y^2$ where x = r$\cos\theta$, y = r $\sin\theta$ then show that $\frac{\partial(u,v)}{\partial(r,\theta)}$ = 6 r^3 sin 2θ.	CO1	K2	7
(OR)				
6. a)	Expand $x^2y + 3y - 2$ in powers of $(x-1)$ and $(y+2)$ using Taylor's theorem.	CO1	K2	8
b)	By using the method of differentiation under the integral sign prove that $\int_0^\infty \frac{\tan^{-1}(ax)}{x(1+x^2)}$ dx = $\frac{\pi}{2}\log(1+a)$, a $\geq$ 0.	CO1	K3	7
	UNIT-IV			
7. a)	Solve $x^2(y - z)p + y^2(z - x)q = z^2(x - y)$.	CO2	K2	8
b)	solve $(D^2 - DD' - 2D'^2)$ z = (y - 1)e^x.	CO2	K2	7
(OR)				
8. a)	Solve x(y - z)p + y(z - x)q = z(x - y).	CO2	K2	8
b)	solve (D + D' - 1)(D + 2D' - 3)z = 3x + 6y + 4.	CO2	K2	7
	UNIT-V			
9.a)	Obtain the solution of $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} = 0$ by the method of separation of variables.	CO6	K2	8
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, find the displacement at any subsequent time.	CO6	K3	7
(OR)				
10.a)	Obtain the solution of $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 0$ by the method of separation of variables.	CO6	K2	8
b)	A bar of conducting material of length π units is initially kept at a temperature sin x. Find the temperature at any subsequent time if the ends of the bar are held at zero temperature.	CO6	K3	7

[B19BS1105]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B.Tech II Semester (R19) Regular Examinations.

APPLIED CHEMISTRY

(Common to CSE,ECE &IT)

MODEL QUESTION PAPER

Time : 3Hrs **Max. Marks : 75 M**

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

All questions carry equal marks.

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			CO	KL	M
		UNIT - I			
1.	a).	Explain the mechanism of free radical Polymerization reaction with a suitable example.	1	2	8
	b).	Distinguish between thermoplastic and thermosetting resins.	1	4	7
		OR			
2.	a).	What are conducting Polymers? Discuss the applications of conducting Polymers.	1	1	8
	b).	Write notes on Bu Na – S and Bu Na – N.	1	1	7
		UNIT - II			
3.	a).	Explain the Proximate analysis of coal and give its significance.	2	2	8
	b).	Explain Photovoltaic cell with neat diagram.	2	1	7
		OR			
4.	a).	Explain the fractional distillation of crude oil.	2	1	8
	b).	How synthetic Petrol can be prepared by Berguis Process.	2	1	7
		UNIT - III			
5.	a).	Explain the mechanism of electrochemical theory of corrosion with neat diagram.	3	1	8
	b).	Describe briefly about cathodic Protection.	3	2	7
		OR			
6.	a).	Explain Hydrogen – Oxygen fuel cell with neat cell diagram	3	1	8
	b).	Discuss on various constituents of Paint.	3	2	7
		UNIT - IV			
7.	a).	What is hardness? How it is determined by EDTA method? Explain.	4	1	8
	b).	Describe with equations how water can be softened using Lime & Soda Process	4	1	7
		OR			
8.	a).	Discuss various sterilizing methods used in municipal water treatment.	4	2	8
	b).	Illustrate the reverse osmosis Process with a neat diagram.	4	2	7
		UNIT - V			
9.	a).	Discuss chemistry involved in setting and hardening of cement?	5	2	8
	b).	What are refractories? Discuss the classification of refractories.	5	1	7
		OR			
10.	a).	Write the engineering applications of Liquid Crystals.	5	1	8
	b).	Explain the stoichiometric defects in crystals.	5	2	7

[B19 CS 1101]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech I Semester (R19) Regular Examinations

COMPUTER FUNDAMENTALS & PROBLEM SOLVING USING C

(Common to CSE & IT)

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
		UNIT - I			
1.	a).	Explain about Flow chart Symbols.	C1	K2	8
	b).	Construct flowchart for biggest of 3 numbers.	C1	K2	7
		OR			
2.	a).	Explain about scratch Environment.	C1	K2	8
	b).	Construct flowchart for Linear search.	C1	K2	7
		UNIT - II			
3.	a).	Explain different c operators.	C2	K2	8
	b).	Compare while loop and Do-while loop.	C2	K2	7
		OR			
4.	a).	Explain about structure of a C program	C2	K2	8
	b).	What is type conversion? Explain type conversions in C.	C2	K2	7
		UNIT - III			
5.	a).	What is modular programming?	C3	K1	8
	b).	Write a c program for towers of Hanoi using recursive function.	C3	K3	7
		OR			
6.	a).	What is the difference between actual and formal parameters?	C3	K1	8
	b).	Write a c program for Fibonacci series using recursive function.	C3	K3	7
		UNIT - IV			
7.	a).	What is a pointer? How pointer variables are initialized.	C4	K1	8
	b).	Write a program to print command line arguments on the screen.	C4	K3	7
		OR			
8.	a).	Explain the difference between structure and union and write a program to find sum of marks in 3 subjects for a student using structures.	C4	K2	8
	b).	What is a self-referential structure?	C4	K1	7
		UNIT - V			
9.	a).	Write the syntax for opening a file with various modes and closing a file.	C5	K2	8
	b).	Write a c program for Caps Lock on/off.	C5	K3	7
		OR			
10.	a).	Explain about the input and output operations of a file.	C5	K2	8
	b).	Write a c program to open a file and to print its contents on screen.	C5	K3	7

[B19 BS 1202]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE(A)

I B. Tech II Semester (R19) Regular Examinations

MATHEMATICS – III

(Common to CE,CSE,ECE,EEE & IT)

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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	UNIT-I	CO	KL	Marks
1.a)	Find 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	K2	7
b)	Obtain 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	K2	8
	(OR)			
2. a)	Obtain a 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	K2	8
b)	Find 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, show that $\int_0^\infty \frac{\omega\sin\omega x}{1+\omega^2}\,d\omega=\frac{\pi}{2}e^{-x},\ x>0$	CO2	K3	8
	(OR)			
4. a)	Find the inverse Fourier sine transform f(x) of $F_s(p)=\frac{p}{1+p^2}$	CO2	K2	8
b)	Using Parseval's Identity, prove that $\int_0^\infty \frac{x^2}{(1+x^2)^2}\,dx=\frac{\pi}{4}$	CO2	K3	7
	UNIT-III			
5.a)	Express $\int_0^\infty \sqrt{x}\,e^{-x^3}\,dx$ in terms of gamma function.	CO3	K2	7
b)	Express $\int_0^1 x^m(1-x^n)^p\,dx$ in terms of Gamma functions and hence evaluate $\int_0^1 x^7(1-x^5)^8\,dx$	CO3	K2	8

(OR)				
6. a)	Apply change the order of integration and evaluate $\int_0^\infty \int_x^\infty \frac{e^{-y}}{y} dy\, dx.$	CO3	K3	8
b)	Obtain the volume of the tetrahedron bounded by x = 0, y = 0, z = 0, x+y+z = 1.	CO3	K3	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) .	CO4	K2	8
b)	Determine curl (curl F) where $\bar{F}$ = x^2y $\bar{I}$ – 2 xz $\bar{J}$ + 2 yz $\bar{K}$	CO4	K2	7
(OR)				
8. a)	Show that the vector$(x^2 - yz)\bar{\imath} + (y^2 - zx)\bar{\jmath} + (z^2 - xy)\bar{k}$ Is irrotational and find its scalar potential.	CO4	K2	8
b)	Determine the values of a and b such that the surface a x^2 –b y z = (a+2)x and 4 x^2y + z^3 =4 cut orthogonally at (1,-1, 2).	CO4	K2	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 $\vec{F} = (2x - y - z)\bar{\imath} + (x + y - z^2)\bar{\jmath} + (3x - 2y + 4z)\bar{k}$.	CO5	K2	7
b)	Evaluate the line integral by Stokes’s theorem for the vector function $\vec{F} = y^2\bar{\imath} + x^2\bar{\jmath} + (z + x)\bar{k}$and C is the triangle with vertices (0,0,0),(1,0,0) and (1,1,0).	CO6	K3	8
(OR)				
10	Verify Green’s theorem in the plane $\int_C [(3x^2 - 8y^2)dx + (4y - 6xy)dy]$, where C is boundary of the region defined by y = $\sqrt{x}$, y = x^2	CO6	K3	15

[B19 BS 1203]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech II Semester (R19) Regular Examinations

APPLIED PHYSICS

(Electrical & Electronics 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
		UNIT - I			
1.	a).	Explain the principle of Superposition and discuss the conditions for maxima and minima of intensity.	1	2	8
	b).	How the Newton's Rings are formed and deduce an expression for the wave length of light used.	1	2	7
		OR			
2.	a).	Distinguish the different diffractions of light.	1	2	5
	b).	Give qualitative and quantitative analysis of Fraun hoper diffraction at a single slit	1	3	10
		UNIT - II			
3.	a).	Define polarization and explain the different types of polarization possible in a dielectric	2	2	7
	b).	Deduce the Claussius Mosotti & equation and its significance in dielectrics.	2	3	8
		OR			
4.	a).	Define Magnetic susceptibility and give a classification of magnetic materials.	2	1	5
	b).	Describe the Hysteresis exhibited by Ferromagnetic materials and explain its using a Suitable theory CO2-K3(10M)	2	3	10
		UNIT - III			
5.	a).	Give the selection procedure of the active medium of laser device.	4	2	7
	b).	With suitable diagrams, discuss the working principle, design and working of He – Ne laser system	4	2	8
		OR			
6.	a).	What is the significance of Numerical Aperture of an optical fiber and obtain an expression for it.	4	2	8
	b).	Discuss the sensor applications of optical fiber.	4	3	7
		UNIT - IV			
7.	a).	What is an intrinsic semiconductor and obtain an expression for the density of coiners.	3	2	9
	b).	Distinguish between direct and indirect band gap semiconductors and mention their applications.	3	3	6
		OR			
8.	a).	Discuss the Hall Effect in detail and explain its significance.	3	3	9
	b).	Distinguish between drift and diffusion current in semiconductors.	3	2	6

		UNIT - V			
9.	a).	Explaining Magnetostriction effect, describe how the ultrasonics can be produced.	4	3	9
	b).	Mention the application of ultrasonics.	4	1	6
		OR			
10.	a).	How the nano materials can be produced by sol – gel method.	5	2	7
	b).	Write about Carbon Nanotubes	5	2	4
	C).	Discuss some important applications of nanomaterials.	5	1	4

[B19 CS 1202]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech II Semester (R19) Regular Examinations

DIGITAL LOGIC DESIGN

(Common to CSE & IT)

MODEL QUESTION PAPER

TIME: 3 Hrs. **Max. Marks: 75 M**

Answer **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	K2	8
	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	K2	7
		OR			
2.	a).	Convert the function to another canonical form. F(x,y,z)=π(0,3,6,7)	C1	K2	8
	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	K2	7
		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	8
	b).	Design and explain Binary Adder/ Subtractor.	C2	K3	7
		OR			
4.	a).	Simplify the Boolean Function to product of sums. F(A,B,C,D)= π(0,1,2,3,4,10,11)	C2	K2	8
	b).	Design and explain Decimal Adder.	C2	K2	7
		UNIT - III			
5.	a).	Design and explain about JK Flip flop.	C3	K3	8
	b).	Explain about State Reduction and Assignment with example.	C3	K3	7
		OR			
6.	Explain about design procedure of sequential circuits with an example		C3	K4	15
		UNIT - IV			
7.	a).	Design and explain about Shift Register.	C4	K3	8
	b).	Design and explain about BCD Ripple counter.	C4	K3	7
		OR			
8.	a).	Design and explain about Universal Shift Register.	C4	K3	8
	b).	Design and explain about Synchronous Binary counter.	C4	K3	7
		UNIT - V			
9.	a).	Explain about Memory decoding of RAM.	C5	K3	8
	b).	Explain about ROM Variants	C5	K3	7
		OR			
10.	a).	Explain PLA and PAL	C5	K3	8
	b).	Explain about Hamming code with an example	C5	K3	7

[B19 CS 1203]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech II Semester (R19) Regular Examinations

BASIC DATA STRUCTURES AND PYTHON PROGRAMMING

(Common to CSE & IT)

MODEL QUESTION PAPER

TIME: 3 Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks

*****

			CO	KL	M
		UNIT - I			
1.	a).	What is Algorithm? Explain performance analysis of an algorithm.	C4	K2	8
	b).	State and Explain Merge Sort with example.	C4	K2	7
		OR			
2.	a).	Explain Quick sort Algorithm with example.	C4	K2	8
	b).	Explain the representation of Sparse Matrix with Example.	C4	K2	7
		UNIT - II			
3.	a).	What is stack ADT and Explain Stack operations?	C5	K2	8
	b).	Explain the procedure to convert infix to postfix expression	C5	K2	7
		OR			
4.	a).	Explain the insertion and deletion operations of Circular Queue.	C5	K2	8
	b).	Explain about Dequeue ADT	C5	K2	7
		UNIT - III			
5.	a).	Explain about different Relational operators in python with appropriate examples.	C1	K2	8
	b).	Write the rules for choosing names of variables.	C1	K1	7
		OR			
6.	a).	What are the different Loops available in python?	C1	K1	8
	b).	Write about different types of arguments in a function.	C1	K1	7
		UNIT - IV			
7.	a).	Write in brief about List in python.	C2	K1	8
	b).	Explain about files and their libraries in python.	C2	K2	7
		OR			
8.	a).	Write in brief about Dictionary in python.	C2	K1	8
	b).	Explain about tuples in python. Write operations with suitable examples.	C2	K2	7
		UNIT - V			
9.	a).	Explain different types of key press events.	C3	K2	8
	b).	Write about mouse events in detail.	C3	K1	7
		OR			
10.	a).	Explain about Event Drive programming.	C3	K2	8
	b).	Write about timer events in detail.	C3	K1	7

[B19ME1201]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech I Semester (R19) Regular Examinations

ENGINEERING DRAWING

(Common to CSE,ECE & IT)

Department of Mechanical Engineering

MODEL QUESTION PAPER

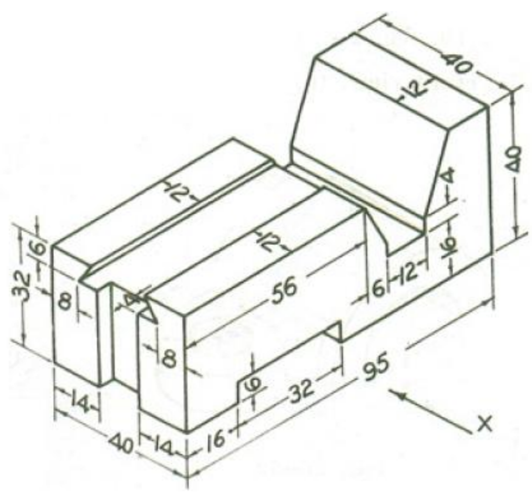
TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

*****

			CO	KL	M
		UNIT-I			
1.		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	K3	15
		OR			
2.		Two fixed points A and B are 100mm apart, Trace the complete path of a point P moving (in the same plane as that of A and B) in such a way that the sum of its distance from A and B is always the same and equal to 125mm. Name the curve and draw another curve parallel to and 25mm away from this curve.	1	K3	15
		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	K3	8
	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	K3	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	K3	15
		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	K3	15

		OR			
6.		A semicircular plate of 40mm diameter has its straight edge in the VP and inclined at 45^o to the HP, the surface of the plate makes an angle of 30^o with the VP. Draw its projections.	3	K3	15
		UNIT-IV			
7.		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.	4	K3	15
		OR			
8.		Draw the projections of a cylinder 75mm diameter and 100mm long, lying on the ground with its axis inclined at 30^o to the VP and parallel to the ground.	4	K3	15
		UNIT-V			
9.		A square pyramid with base side 40mm and height 60mm is resting on a cube of sides 50mm, the axes of the cube and the pyramid being in the same line. Two sides of the base of the pyramid are parallel to the edges of the cube. Draw the isometric view.	5	K3	15
		OR			
10.		Draw (i) Front View (ii) Top View (iii) Side View of the object shown below:  All the dimensions are in mm	6	K3	15