[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 1103]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech I Semester (R19) Regular Examinations

ENGINEERING PHYSICS

(Common to CE & ME)

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).	What is a Bravais Lattice and explain the Bravais lattice in different Crystal systems.	1	2	9
	b).	Deduce the Bragg's Law.	1	3	6
		OR			
2.	a).	How the nano materials can be produced by sol – gel method.	1	2	7
	b).	Write about Carbon Nanotubes	1	2	4
	C).	Discuss some important applications of nanomaterials.	1	1	4
		UNIT - II			
3.	a).	Define Reverberation and obtain the Sabine's formula.	4	3	9
	b).	Explain the requirements of an acoustics calling good hall	4	2	6
		OR			
4.	a).	Explaining Magnetostriction effect, describe how the ultrasonics can be produced.	6	3	9
	b).	Mention the application of ultrasonics.	6	1	6
		UNIT - III			
5.	a).	Distinguish between elastict and plasticts	3	1	4
	b).	State and explain the Hooke's law	3	2	5
	C).	Discuss the bending moment of a beans	3	2	6
		OR			
6.	a).	Explain the stress – strain curve of an isotropic material	3	2	7
	b).	What are the different types of moduli of solids and obtain their relations	3	2	8
		UNIT - IV			
7.	a).	Define polarization and explain the different types of polarization possible in a dielectric	5	2	7
	b).	Deduce the Claussius Mosotti & equation and its significance in dielectrics.	5	3	8
		OR			
8.	a).	Define Magnetic susceptibility and give a classification of magnetic materials.	5	1	5
	b).	Describe the Hysteresis exhibited by Ferromagnetic materials and explain its using a Suitable theory	5	3	10

		UNIT - V			
9.	a).	Give the selection procedure of the active medium of laser device.	6	2	7
	b).	With suitable diagrams, discuss the working principle, design and working of He – Ne laser system	6	2	8
		OR			
10.	a).	What is the significance of Numerical Aperture of an optical fiber and obtain an expression for it.	6	2	8
	b).	Discuss the sensor applications of optical fiber.	6	2	7

[B19 EE 1101]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech I Semester (R19) Regular Examinations

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(MECHANICAL ENGINEERING)

MODEL QUESTION PAPER

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

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

All questions carry equal marks

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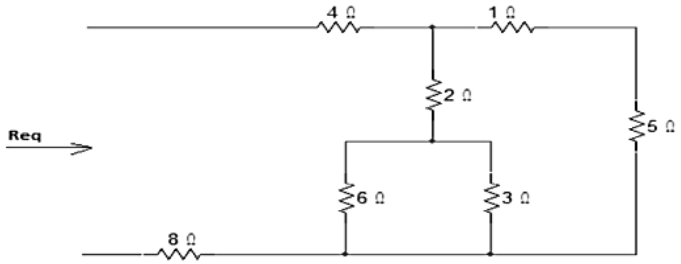
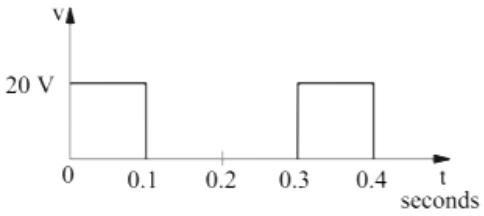
		UNIT-I	CO	KL	M
1.	(a).	State and explain Kirchhoff's Laws with example	CO:1	K2	8M
	(b).	Find R_{eq} for the given circuit 	CO:1	K3	7M
		(OR)			
2.	(a).	State and explain Superposition Theorem.	CO:2	K2	8M
	(b).	If 'n' number of resistance connected in parallel, derive the expression for the equivalent resistance?	CO:1	K3	7M
		UNIT-II			
3.	(a).	Derive the expression for Average and RMS values of a sinusoidal waveform.	CO:2	K3	8M
	(b).	Compute the Average and RMS values of a waveform shown in below figure: 	CO:2	K3	7M
		(OR)			
4.	(a).	Explain the behavior of RL circuit connected to AC supply with neat Phasor diagram	CO:2	K2	8M
	(b).	Draw and Explain Power Triangle	CO:2	K4	7M

UNIT-III					
5.	(a).	Derive the EMF equation of DC generator.	CO:3	K2	8M
	(b).	An 8-pole, wave-connected armature has 600 conductors and is driven at 625 rev/min. If the flux per pole is 20 milli weber, determine the generated E.M.F.	CO:3	K3	7M
(OR)					
6.	(a).	Explain the speed control methods of DC shunt motor with neat sketches	CO:4	K5	8M
	(b).	Obtain the formula for Back EMF for different types of motors	CO:4	K3	7M
UNIT-IV					
7.	(a).	Explain the Principle of operation of single phase transformer	CO:3	K2	8M
	(b).	Obtain the formula for equivalent circuit referred to primary and secondary	CO:5	K3	7M
(OR)					
8.	(a).	Explain the Short circuit test on single phase transformer	CO:5	K4	8M
	(b).	Explain the principle and operation of Induction Motor	CO:3		7M
UNIT-V					
9.	(a).	Explain the operation of Diode in Forward and reverse bias conditions and draw V-I characteristics	CO:6	K3	8M
	(b).	Draw and explain input and output Characteristics of CE configurations	CO:6	K3	7M
(OR)					
10.	(a).	Draw the circuit diagram of Bridge rectifier and explain its operation	CO:6	K3	8M
	(b).	Explain how the transistor acts as an amplifier	CO:6	K4	7M

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[B19ME1101]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech I Semester (R19) Regular Examinations

ENGINEERING DRAWING

(Common to CE,EEE & ME)

Department of Mechanical Engineering

MODEL QUESTION PAPER

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

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

All questions carry equal marks.

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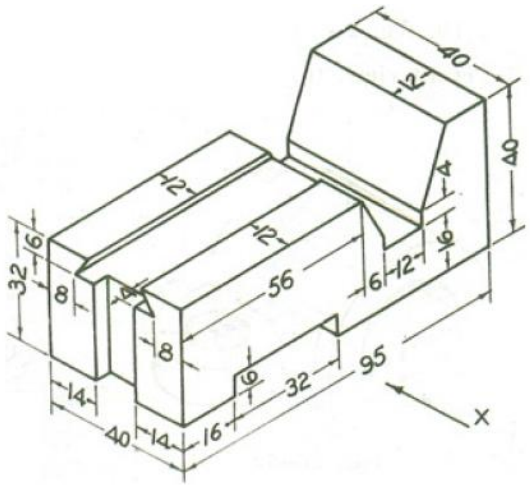
			CO	KL	M
		UNIT-I			
1.		An inelastic string 145 mm long has its one end attached to the circumference of a circular disc of 40 mm diameter. Draw the curve traced out by the other end of the string, when it is completely wound around the disc, keeping the string always tight.	1	K3	15
		OR			
2.		Two fixed 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

[B19 BS 1201]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech II Semester (R19) Regular Examinations

MATHEMATICS – II

(Common to CE, EEE & ME)

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)	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 = rcos θ, y = r sin θ 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

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech II Semester (R19) Regular Examinations

ENGINEERING MECHANICS

(MECHANICAL ENGINEERING)

MODEL QUESTION PAPER

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

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

All questions carry equal marks.

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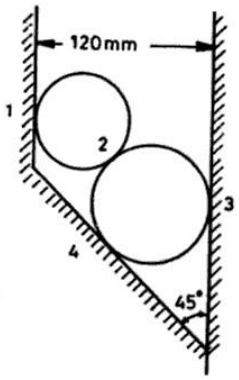
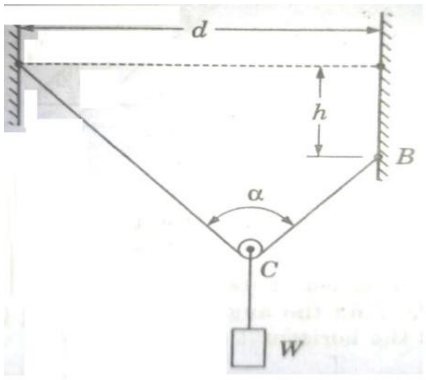
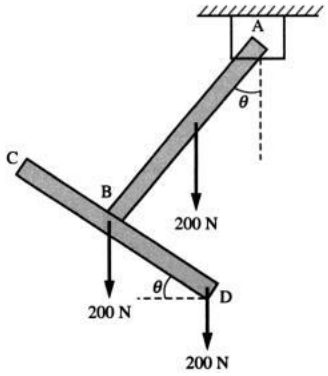
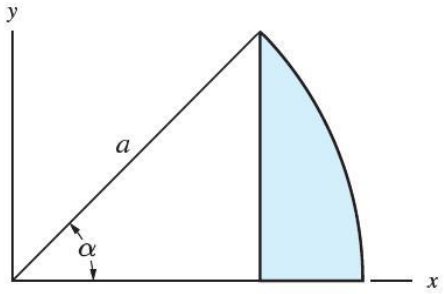
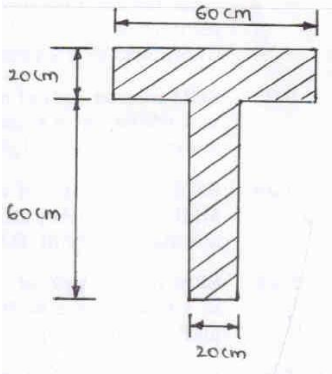
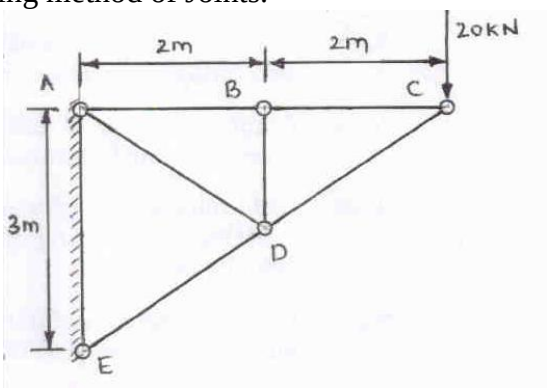
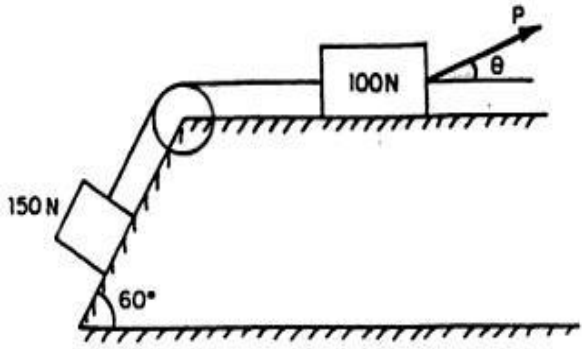
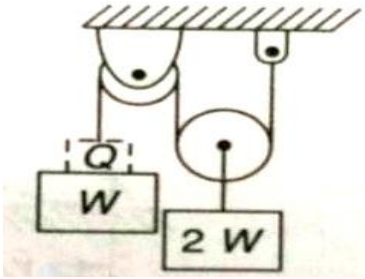
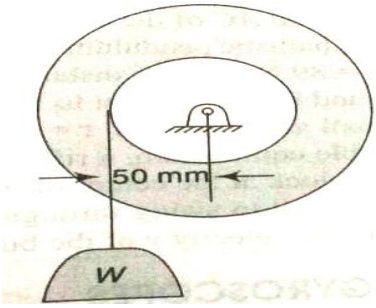
			CO	KL	M
		UNIT-I			
1.	a).	State and prove Varignon's theorem.	1	K2	8
	b).	Two cylinders of diameter 100 mm and 50 mm, weighing 200 N and 50 N, respectively are placed in a trough as shown in Figure 1. Assuming smooth surfaces, find the reactions at the points of supports 1, 2, 3 and 4.  Figure 1	1	K3	7
		OR			
2.	a).	A string ABC of length *l* carries a small pulley C from which a Load W is suspended as shown in Figure 2. The string hangs between two vertical walls which are at a distance *d* apart. The end A is higher than the end B by height *h*. Find the position of equilibrium defined by the angle α. Assume $d = l/2$ and $h = l/4$.  Figure 2	1	K3	8
	b).	Two identical prismatic bars AB & CD each weighing 200 N are welded together to form a Tee and are suspended in a vertical plane as	1	K3	7

		shown in Figure 3. Calculate the values of the θ that the bar AB will make with the vertical when a vertical load of 200 N is applied at D.  Figure 3			
		UNIT-II			
3.	a).	Derive the centriod of a wire bend in the form of a sector of an arc by taking the radius as 'r' and angle of sector as 'θ'.	2	K3	8
	b).	Determine the centriod of the shaded segment for Figure 4 by taking a = 18 m and $\alpha = 45^0$.  Figure 4	2	K3	7
		OR			
4.	a).	Derive the moment of inertia of triangle about its centriodal axis and also deduce the same about its base.	2	K3	8
	b).	Determine the moment of Inertia of the T-section shown in Figure 5 about its centroidal axis.  Figure 5	2	K3	7

		UNIT-III			
5.	a).	Find out the forces in all the members of a pin jointed truss as shown in Figure 6 by using method of Joints.  Figure 6	3	K3	8
	b).	A uniform ladder 5m long on a horizontal ground and leans against a smooth vertical wall at an angle of 70^0 with the horizontal. The weight of the ladder is 90 N and acts at its middle. The ladder is at the point of sliding, when a man weighing 75N stands on a rung 3.5m from the top of the ladder. Calculate the co-efficient of the friction between the ladder and the floor.	4	K3	7
		OR			
6.	a).	Explain the terms angle of repose, cone of friction and write the laws of friction	4	K1	8
	b).	Referring to the Figure 7 given above, determine the least values of the force P to cause motion to impend right wards. Assume the coefficient of friction under the blocks to be 0.2 and pulley to be frictionless.  Figure 7	4	K3	7
		UNIT-IV			
7.	a).	A stone is dropped from the top of a tower 60 m high. At the same instant, another stone is thrown vertically upwards from the foot of tower to meet the first stone at a height of 18 m. Determine (i) the time when the two stones meet; (ii) the velocity with which the second stone was thrown up.	5	K2	8
	b).	Weight W and 2W are supported in a vertical plane by a string and pulleys arranged as shown in Figure 8. Find the magnitude of an	5	K3	7

		additional weight Q applied on the left which will give a downward acceleration a = 0.1g to the weight W.  Figure 8			
		OR			
8.	a).	Define Time of Flight, Range and Maximum Height of a projectile.	5	K1	8
	b).	Derive the general equation of projectile motion.	5	K2	7
		UNIT-V			
9.	a).	A flywheel is rotating at 150 R.P.M. and after 8 seconds it is rotating at 120 R.P.M. If the retardation is uniform, determine number of revolutions made by the flywheel and the time taken by the flywheel before it comes to rest from the speed of 150 R.P.M.	6	K3	8
	b).	A rotor of weight W = 1720 N and radius of gyration k = 100 mm is mounted on a horizontal shaft and set in rotation by a falling weight W = 1720 N as shown in Figure 9. If the system is released from rest, find the velocity of the block after it has fallen through a distance of 3 m.  Figure 9	6	K3	7
		OR			
10.	a).	A body is rotating with an angular velocity of 8 radian/s. After 5 seconds, the angular velocity of the body becomes 28 radian/s. determine the angular acceleration of the body.	6	K3	8
	b).	Three bodies, a sphere, a cylinder and a hoop each having the same mass and radius are released from rest from an inclined plane of angle θ. Determine the velocity of each of the bodies after it has rolled down the incline plane through a distance s.	6	K3	7

[Code : B19BS1204]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

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

ENGINEERING CHEMISTRY

(Common to CE & ME)

MODEL QUESTION PAPER

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

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

All questions carry equal marks.

******

			CO	KL	M
		UNIT - I			
1.	a).	What is hardness? How it is determined by EDTA method? Explain.	1	1	8
	b).	Describe with equations how water can be softened using Lime & Soda Process	1	2	7
		OR			
2.	a).	Discuss various sterilizing methods used in municipal water treatment.	1	2	8
	b).	Illustrate the reverse osmosis Process with a neat diagram.	1	2	7
		UNIT - II			
3.	a).	Explain the Proximate analysis of coal and give its significance.	2	2	8
	b).	Explain the fractional distillation of crude oil.	2	2	7
		OR			
4.	a).	Write notes on (i)Knocking (ii)CNG	2	1	8
	b).	How Synthetic Petrol can be prepared by Bergius Process.	2	1	7
		UNIT - III			
5.	a).	Explain the mechanism of electrochemical theory of corrosion with neat diagram.	3	2	8
	b).	Describe briefly about cathodic Protection.	3	2	7
		OR			
6.	a).	Explain Hydrogen – Oxygen fuel cell with neat cell diagram	3	2	8
	b).	Discuss on various constituents of Paint.	3	6	7
		UNIT - IV			
7.	a).	Explain the mechanism of free radical Polymerization reaction with a suitable example.	4	2	8
	b).	Distinguish between thermoplastics and thermosetting resins.	4	4	7
		OR			
8.	a).	What are conducting Polymers? Discuss the applications of conducting Polymers.	4	1	8
	b).	Write notes on Bu Na – S and Bu Na – N.	4	1	7
		UNIT - V			
9.	a).	Discuss chemistry involved in setting and hardening of cement?	5	6	8
	b).	What are refractories? Discuss the classification of refractories.	5	1	7
		OR			
10.	a).	Write detailed account of various types of ceramics, their Properties and uses.	5	1	8
	b).	What are insulators? How are they are classified? Give examples.	5	1	7

[B19CS1201]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

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

PROGRAMMING FOR PROBLEM SOLVING USING C

(Common to CE,EEE & ME)

MODEL QUESTION PAPER

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

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

All questions carry equal marks.

*****

			CO	KL	M
		UNIT - I			
1.	a).	Describe various types of computer languages	CO1	K2	8M
	b).	Explain various types of Number systems?	CO1	K2	7M
		OR			
2.	a).	Explain various data types in C Language	CO1	K2	8M
	b).	Define an operator? Describe Increment and decrement operator with an example	CO1	K1	7M
		UNIT - II			
3.	a).	Explain various types of Bitwise Operators with examples	CO2	K2	8M
	b).	Differentiate between if statement and if-else statement with suitable examples and proper syntax	CO2	K2	7M
		OR			
4.	a).	Write a program whether given number is Armstrong number or not	CO2	K3	8M
	b).	Differentiate break and continue statement with an example	CO2	K2	7M
		UNIT - III			
5.	a).	How to declare, initialize and reading of one dimensional array with an example	CO3	K1	8M
	b).	Explain various string manipulation functions	CO3	K2	7M
		OR			
6.	a).	Write a C program for multiplication of two matrices	CO3	K3	8M
	b).	Define a structure? How to declare ,initialize , accessing of structure elements with example	CO3	K1	7M
		UNIT - IV			
7.	a).	Define a pointer? explain pointer arithmetic	CO4	K2	8M
	b).	Explain Dynamic Memory Allocation	CO4	K2	7M
		OR			
8.	a).	Explain array of pointers with an example	CO4	K2	8M
	b).	Outline C Pre-processor and write various pre-processor commands	CO4	K2	7M
		UNIT - V			
9.	a).	Define a function? Explain various categories of functions	CO5	K2	8M
	b).	Explain with an example passing array as an argument to a function	CO5	K2	7M
		OR			
10.	a).	Define a recursive function? Write a program for GCD of two numbers using recursion	CO5	K3	8M
	b).	Explain various types of file functions?	CO5	K2	7M

[B19ME1203]

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

I B. Tech II Semester (R19) Regular Examinations

COMPUTER AIDED ENGINEERING DRAWING

Department of Mechanical Engineering

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 45 M**

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

All questions carry equal marks.

*****

		PART-A	CO	KL	M
		UNIT-I			
1.		Draw the projections of a cube of 25mm long edges resting on the HP on one of its corners with a solid diagonal perpendicular to VP.	1	K3	15
		OR			
2.		A pentagonal pyramid base 25mm side and axis 50mm long has one of its triangular faces in the VP and the edge of the base contained by that face makes an angle of 30^0 with the HP. Draw its projections.	1	K3	15
		UNIT-II			
3.		A hexagonal pyramid, base 30 mm side and axis 75 mm long, resting on its base on HP with two of its edges parallel to VP is cut by two section planes both perpendicular VP. The horizontal section plane cuts the axis at a point 35 mm from the apex. The other plane which makes an angle of 45^0 with the HP also intersects the axis at the same point. Draw the front view, sectional top view and true shape of section.	2	K3	15
		OR			
4.		A cone of base diameter 50 mm and axis 60 mm is resting on its base on the HP. Draw the development of its lateral surface when it is cut by an auxiliary inclined plane inclined at 60^0 to the HP and bisection the axis.	3	K3	15
		UNIT-III			
5.		A cylinder of 75 mm diameter and 125 mm height stands on its base on the ground. It is penetrated centrally by a cylinder, 50 mm diameter and 125 mm long, whose axis parallel to VP and is, inclined at 30^0 to the HP. Draw the projection showing curves of intersection.	4	K3	15
		OR			
6.		Draw the perspective projection of a rectangular block of 20 mm × 50 mm × 50 mm high when one of its vertical edges is touching the PP. The side containing that edge recedes 30^0 to the right of PP. The observer is standing in front of the edge at a distance of 100 mm and height of observer is 90 mm	5	K3	15