



**LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING**  
(AUTONOMOUS)

L.B. Reddy Nagar :: Mylavaram-521 230 :: Krishna Dist. :: A.P  
Approved by AICTE, New Delhi. Affiliated to JNTUK, Kakinada

**B.Tech.(I Semester) (R14) Supplementary Examinations, September 2021**

**TIME TABLE**

**TIME : 02.00 PM to 05.00 PM**

**A.Y. 2020-21**

DATE	ASE	CE	CSE	ECE	EEE	EIE	IT	ME
03-09-2021 (Friday)	S239 - English-I	S239 - English-I	S239 - English-I	S239 - English-I	S239 - English-I	S239 - English-I	S239 - English-I	S239 - English-I
04-09-2021 (Saturday)	S132 - Applied Mathematics-I	S132 - Applied Mathematics-I	S132 - Applied Mathematics-I	S298 - Mathematics-I	S132 - Applied Mathematics-I	S132 - Applied Mathematics-I	S132 - Applied Mathematics-I	S132 - Applied Mathematics-I
06-09-2021 (Monday)	S232 - Engineering Chemistry	S232 - Engineering Chemistry	S232 - Engineering Chemistry	S238 - Engineering Physics	S238 - Engineering Physics	S238 - Engineering Physics	S232 - Engineering Chemistry	S232 - Engineering Chemistry
07-09-2021 (Tuesday)	S170 - Computer Programming	S170 - Computer Programming	S170 - Computer Programming	S170 - Computer Programming	S170 -Computer Programming	S170 - Computer Programming	S170 -Computer Programming	S170 - Computer Programming
08-09-2021 (Wednesday)	S235 - Engineering Graphics	S235 - Engineering Graphics	S143 - Basic Electrical Engineering	S211 - Electrical Circuits and Networks - I	S146 - Basic Engineering Mechanics	S156 - Circuit Theory	S143 - Basic Electrical Engineering	S235 - Engineering Graphics

Note: Any omissions or clashes in the time table may please be informed to the Controller of Examinations immediately.

**Date: 07-08-2021**

  
**CONTROLLER OF EXAMINATIONS**

  
**PRINCIPAL**

Copy to: 1. Vice-Principal, Deans & HoDs 2. Transport in-charge & Librarian  
3. Canteen, Security & Hostels 4. All Notice Boards



17 SEP 2021

H.T.No

R14

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B.Tech. (I Semester) Supplementary Examinations

**S170-COMPUTER PROGRAMMING**

(Common to All)

Time : 3 hours

Max. Marks : 75

**PART-A**

(Compulsory question)

Q.No	Questions	Marks
1(a)	Which statements are used to repeat the execution of a list of statements?	1M
(b)	How do you determine the size occupied by a string in a memory?	1M
(c)	What is recursive function?	1M
(d)	Which operator is used in pointer to structure?	1M
(e)	What is the meaning of file mode r+b?	1M
(f)	How comment lines can be used in C?	2M
(g)	How is an array different from an ordinary variable?	2M
(h)	What are the parameter passing techniques in functions?	2M
(i)	How are arrays of structures defined?	2M
(j)	To perform operations on files, what type of pointer need to be created.	2M

**PART-B**

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Explain the multi-way conditional statements in detail with suitable example declarations.	8M
(b)	Write a C program to prepare electricity bill by assuming appropriate conditions.	7M
3(a)	Construct a C program to sort the elements of an integer array.	8M
(b)	List out some important operations performed on arrays.	7M
4(a)	What is a pointer? Explain about pointer arithmetic with examples.	8M
(b)	Write a C program to find the factorial of a given number using recursion.	7M
5(a)	Write a C program to accept two dates from the user and check if they are different dates or not using structures.	8M
(b)	Compare and contrast structure and array with suitable examples.	7M
6(a)	State and explain standard streams in C.	7M
(b)	Write procedure to create a file in C Program.	8M
7.	Categorize various types of function definitions with examples.	15M
8(a)	Compare and contrast fwrite() with fprintf().	8M
(b)	Write a C program to read a text file using fgetc().	7M

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B.Tech. (I Semester) Supplementary Examinations

**S132-APPLIED MATHEMATICS-I**

(AE,CE,CSE,EEE,EIE,IT&ME)

Time : 3 hours

Max. Marks : 75

**PART-A**

(Compulsory question)

Q.No	Questions	Marks
1(a)	Define the degree of a differential equation.	1M
(b)	Evaluate the complete solution of $\frac{d^4 y}{dx^4} - y = 0$	1M
(c)	Define saddle point.	1M
(d)	What is a skew - symmetric matrix?	1M
(e)	Find the eigen values of a unit matrix of order 3.	1M
(f)	Detect the integrating factor of $y' + ye^x = e^{2x}$ .	2M
(g)	Write the Complementary function of $(D+1)(D-2)^2 y = e^{3x}$ .	2M
(h)	Find the stationary points of $f(x,y) = xy + x-y$ .	2M
(i)	If the set of linear equations $x_1 + x_2 = x_3 - x_1$ , $3 - x_2 = 2x_1$ can be represented as $Ax = b$ , then write A and b.	2M
(j)	If $\lambda^2 - 5\lambda - 2 = 0$ is the characteristic equation of square matrix A, then find $A^{-1}$ .	2M

**PART-B**

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Give the condition for exactness and find the solution of $(e^y + 1)\cos x dx + e^y \sin x dy = 0$ .	7M
(b)	Evaluate the general solution of Bernoulli equation $\frac{dy}{dx} + y \cos x = y^3 \sin 2x$	8M
3(a)	Solve $(D^2 + 2D + 2)y = x^2 + 1$ .	7M
(b)	By transforming the equation into equation of constant coefficient form, find the general solution of $(x^2 D^2 - xD + 3)y = e^{2x}$	8M
4(a)	If $u = \frac{yz}{x}$ , $v = \frac{xz}{y}$ , $w = \frac{xy}{z}$ find $\frac{\partial(u,v,w)}{\partial(x,y,z)}$ .	7M
(b)	By eliminating arbitrary function, form the partial differential equation for $f(x^2 + y^2, z^2 - xy) = 0$	8M
5(a)	Reduce the matrix $A = \begin{bmatrix} -2 & -1 & -3 & -1 \\ 1 & 2 & 3 & -1 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & -1 \end{bmatrix}$ to Echelon form and find its rank.	8M

**S132-APPLIED MATHEMATICS-I**

(b)	Test whether the following system of equations $3x+y+2z= 3$ ; $2x-3y-z= -3$ and $x+2y+z =4$ are consistent or not. If so solve them.	7M
6(a)	Find the eigen values and the corresponding eigen vectors of $\begin{bmatrix} 5 & -2 & 0 \\ -2 & 6 & 2 \\ 0 & 2 & 7 \end{bmatrix}$	8M
(b)	Show that a square matrix $A$ and $A^T$ have the same eigen values.	7M
7(a)	If $x=a\cos\theta, y=a\sin\theta, z=z$ , then evaluate $\frac{\partial(x,y,z)}{\partial(a,\theta,z)}$ .	7M
(b)	Apply Lagrange's multiplier method to find the minimum of $x^2+y^2+z^2$ given that $xyz=a^3$ .	8M
8(a)	Solve $(x^2y^2-1)ydx+(x^2y^2+1)xdy=0$ .	7M
(b)	Find the orthogonal trajectories of $r=a(1-\cos\theta)$ .	8M

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H.T.No

8 SEP 2021

R14

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B.Tech. (I Semester) ~~Regular~~/Supplementary Examinations

**S143-BASIC ELECTRICAL ENGINEERING**

(CSE & IT)

Time : 3 hours

Max.Marks : 75

**PART-A**

(Compulsory question)

Q.No	Questions	Marks
1(a)	State Kirchhoff's voltage law with example.	1M
(b)	What is the necessity of Starter in DC motor?	1M
(c)	How core losses are obtained in transformer?	1M
(d)	Identify the applications of salient pole type rotor alternator.	1M
(e)	Give an example for recording type instruments.	1M
(f)	Explain the bilateral elements.	2M
(g)	Name the main parts of DC machine.	2M
(h)	Draw the equivalent circuit of transformer.	2M
(i)	Define synchronous reactance.	2M
(j)	Sketch the diagram for gravity control.	2M

**PART-B**

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Explain Kirchhoff's current law with example.	8M
(b)	Distinguish between series and parallel circuits.	7M
3(a)	Draw the internal characteristics of separately excited DC generator.	7M
(b)	Draw the DC shunt generator and write necessary equations.	8M
4(a)	Calculate the average and RMS value of the sinusoidal current whose peak value is 200A.	8M
(b)	List out different types of core losses how they are minimized.	7M
5(a)	Differentiate between salient and non salient pole rotors of an alternator.	8M
(b)	Draw the torque slip characteristics of induction motor.	7M
6(a)	List out the advantages of PMMC and MI instruments.	7M
(b)	Differentiate between the spring and gravity control.	8M
7(a)	Discuss voltage and current division rules.	7M
(b)	Three resistors 8 ohms, 4 ohms, 2 ohms are connected in delta circuit. If same resistors are re-connected in star circuit, Evaluate the new value of resistors.	8M
8(a)	Explain the load characteristics of DC series generator.	7M
(b)	Distinguish between DC generator and DC motor.	8M

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B.Tech. (I Semester) ~~Regular~~/Supplementary Examinations

**S238-ENGINEERING PHYSICS**

(ECE,EEE&EIE)

Time : 3 hours

Max. Marks : 75

**PART-A**

(Compulsory question)

Q.No	Questions	Marks
1(a)	What type of wave front undergoes diffraction in Fresnel's diffraction?	1M
(b)	What are matter waves?	1M
(c)	How many wave lengths are present in the monochromatic light?	1M
(d)	What is the value of permeability of free space ( $\mu_0$ )?	1M
(e)	Super conductors are classified into how many types.	1M
(f)	Can you explain what must have happened when one of the two Nicol prisms is rotated through an angle of $90^\circ$ .	2M
(g)	Write the wave function of an electron in a potential box of width 'L'.	2M
(h)	List out the classification of optical fibers based on RI profile.	2M
(i)	Define relative permeability.	2M
(j)	What is transition temperature in superconductors?	2M

**PART-B**

(Answer any FOUR questions. All questions carry equal marks)

2(a)	What do you mean by Polarization? Can you distinguish between Polarized and Unpolarised lights?	7M
(b)	Can you design the Nicol's prism and explain how it works as a polarizer and analyzer?	8M
3(a)	Explain the physical significance of wave function.	7M
(b)	Obtain an expression for the wavelength of matter waves.	8M
4(a)	Derive the relation between Einstein coefficients.	8M
(b)	Can you write a brief outline about the applications of Lasers in different fields?	7M
5(a)	Can you distinguish between antiferro and ferri magnetic materials?	8M
(b)	Explain the characteristics of soft and hard magnetic materials with examples?	7M
6(a)	What is superconductivity? Explain Meissner effect. Describe type-I and type-II superconductors.	8M
(b)	List out the applications of superconductors.	7M
7(a)	Describe the construction and working principle of Nicol's prism.	8M
(b)	Comment on quarter wave plate and half wave plate.	7M
8(a)	What is Meissner effect? Show that super conductors exhibit perfect dia magnetism.	8M
(b)	Calculate the critical current for a wire of lead having a diameter of 1mm at 4.2K The critical temperature for lead is 7.18K and $H_0 = 6.5 \times 10^4$ A/m.	7M



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**S156-CIRCUIT THEORY**

(EIE)

Time : 3 hours

Max. Marks : 75

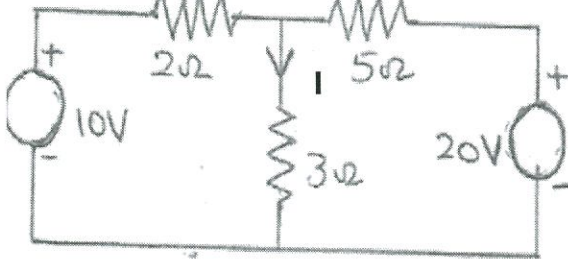
**PART-A**

(Compulsory question)

Q.No	Questions	Marks
1 (a)	What do you mean by Bilateral?	1M
(b)	What is the Dual element of Conductance?	1M
(c)	How hysteresis losses are minimized in an Electric machine?	1M
(d)	What is the r.m.s value of a sine wave which has a peak value of 10V?	1M
(e)	Which equivalent circuit consists of current source in parallel with a resistance?	1M
(f)	Determine the amount of voltage drop across $10\Omega$ resistor, if two resistors $5\Omega$ and $10\Omega$ are connected in series to 20V battery.	2M
(g)	What is a fundamental cut-set?	2M
(h)	Differentiate Electric and magnetic circuits.	2M
(i)	A series circuit has $R=30\Omega$ and $X_C=15.91\Omega$ , Determine Impedance.	2M
(j)	Why is power systems never operated under maximum power condition?	2M

**PART-B**

(Answer any FOUR questions. All questions carry equal marks)

2.	Derive expressions for star connected arms in terms of delta connected arms.	15M
3(a)	Summarize the procedure to obtain possible number of Trees for the incidence matrix.	7M
(b)	Summarize the procedure to construct a dual network.	8M
4(a)	Explain the significance of Dot convention with proper diagrams.	8M
(b)	Calculate the reluctance and self inductance of a coil if the coil has 1000 turns, relative permeability of the material used for coil is 1400, length of the coil is 70cm and cross-sectional area of the coil is $5\text{cm}^2$ . And also determine the emf induced in the coil if a current of 10A is uniformly reversed in 0.2 sec.	7M
5(a)	Derive an expression for resonance frequency of parallel circuit considering internal resistances of inductances and capacitance.	7M
(b)	Draw the locus diagram for series RL Circuit with fixed R and Variable L.	8M
6(a)	Explain the Reciprocity theorem with an example.	7M
(b)	Solve for the current I using Millman's Theorem. 	8M
7(a)	Calculate the voltages across each resistor, if $2\Omega$ , $3\Omega$ and $5\Omega$ resistors are connected in series with a 50V Battery.	7M
(b)	Describe about ideal and practical current sources and draw their characteristics.	8M
8(a)	Explain the cut-set schedule with an example.	7M
(b)	List the properties of a Tree.	8M



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B.Tech. (I Semester) Supplementary Examinations

**S235-ENGINEERING GRAPHICS**

(ME)

Time : 3 hours

Max. Marks : 75

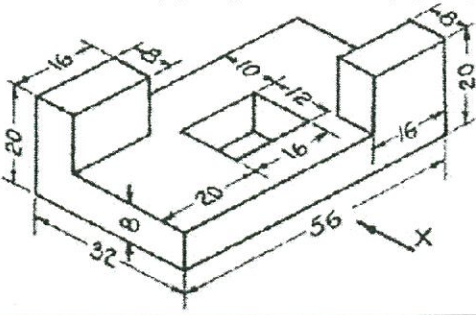
**PART-A**

(Compulsory question)

Q.No	Questions	Marks
1(a)	Distinguish between dimension lines and projection lines.	1M
(b)	State the position of the point, the front view of which lies 45 mm above the reference line and the top view 30 mm above it.	1M
(c)	The true shape of square plane is seen in the side view. What will be the shape of its top view?	1M
(d)	What is the shape of front view and top view of a sphere?	1M
(e)	Define isometric axes.	1M
(f)	Where do you apply the concepts of involutes?	2M
(g)	What are the applications of 'traces of a line' in projections?	2M
(h)	Define a plane. How projections of planes at different orientations will be helpful in industrial applications.	2M
(i)	A cone is resting on its base. What is the shape of its top view?	2M
(j)	Draw the isometric view of a cube of 20 mm base.	2M

**PART-B**

(Answer any FOUR questions. All questions carry equal marks)

2.	A stone is thrown from a building 6.0 meters height. It just crosses the top of a tree 12 meters high. Trace the path of projectile if the horizontal distance between the building and the tree be 4.0 meters. Also find the distance of the point from the building where the stone falls on the ground.	15M
3.	The length of the plan of a straight line AB is 50mm and length of the elevation is 70mm. The plan ab is inclined at $30^\circ$ to XY line. Draw the projections of the line AB, assuming point A to be situated on HP and 20mm in front of VP. Also find the true length and inclinations with HP and VP.	15M
4.	A thin rectangular plate of sides, 60 mm $\times$ 30 mm has its shorter edge in V.P and that shorter edge is inclined at $30^\circ$ to H.P. Project its top view if its front view is a square of 30 mm long.	15M
5.	Draw the projections of a right cylinder of diameter 45mm and axis 60mm when its axis makes an angle of $30^\circ$ with the HP and $45^\circ$ with the VP.	15M
6.	<p>Draw the following views of the object given in figure below. All dimensions are in mm. (i) Front view (ii) Top view and (iii) Right side view.</p> 	15M
7.	An equilateral triangle with a 60 mm long edge rests on a corner in the V.P. such that the edge opposite to that corner is perpendicular to the H. P. The surface of the plane is inclined at $45^\circ$ to the V.P. Draw its projections.	15M
8.	Draw an isometric view of a hexagonal prism having a base with 25 mm side and a 65 mm long axis, which is lying on its face in the H.P. with axis parallel to both H.P. and V.P.	15M