B.Tech.(I Sem.)(R17) (Reg/Suppl.)

A.Y. 2019-20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

B.Tech. (I Semester) (R17) Regular and Supplementary Examinations, January 2020

TIME TABLE

TIME : 10.15 AM to 1.15 PM

DATE	ASE	CE	CSE	ECE	EEE	EIE	IT	ME
20-01-2020 (Monday)	17FE01 - Professional Communication-I	17FE01 - Professional Communication - I	17FE01 - Professional Communication-I	17FE01 - Professional Communication-I	17FE01 - Professional Communication-I	17FE01 - Professional Communication-I	17FE01 - Professional Communication - I	17FE01 - Professional Communication-I
22-01-2020 (Wednesday)	17FE04 - Differential Equations and Linear Algebra	17FE04 - Differential Equations and Linear Algebra	17FE05 - Differential Equations and Numerical Applications	17FE04 - Differential Equations and Linear Algebra	17FE04 - Differential Equations and Linear Algebra	17FE04 - Differential Equations and Linear Algebra	17FE04 - Differential Equations and Linear Algebra	17FE04 - Differential Equations and Linear Algebra
24-01-2020 (Friday)	17FE13 - Engineering Physics	17FE13 - Engineering Physics	17FE15 - Engineering Chemistry	17FE15 - Engineering Chemistry	17FE12 - Applied Physics	17FE15 - Engineering Chemistry	17FE15 - Engineering Chemistry	17FE13 - Engineering Physics
27-01-2020 (Monday)	17CI01 - Computer Programming	17CI01 - Computer Programming	17CI01 - Computer Programming	---	17CI01 - Computer Programming	17CI01 - Computer Programming	17CI01 - Computer Programming	17CI01 - Computer Programming
29-01-2020 (Wednesday)	17ME01- Engineering Graphics	17CE01 - Building Materials and Construction	17EC02 - Electronic Devices and Circuits	17EC02 - Electronic Devices and Circuits	17ME50 - Basic Engineering Mechanics	---	17EC02 - Electronic Devices and Circuits	17ME01 - Engineering Graphics
31-01-2020 (Friday)	---	---	---	17EC01 - Electrical Circuits and Networks	---	17EC01 - Electrical Circuits and Networks	---	---

NOTE: (i) Any omissions or clashes in this time table may please be informed to the Controller of Examinations immediately.
(ii) Even if government/JNTUK/College declares holiday on any of the above dates, the examinations shall be conducted as notified only.
(iii) For any clarification in respect of the above examinations, please contact the Controller of Examinations.

Date: 28-12-2019

CONTROLLER OF EXAMINATIONS

PRINCIPAL 28/12/19

Copy to: 1. All H.o.Ds for N.A.
2. All Notice Boards

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20 JAN 2020

R17

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.:: A.P.

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

17FE01-PROFESSIONAL COMMUNICATION-I
(Common to All)

Time : 3 hours Max. Marks : 60

Answer one question from each unit.
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Analyze Kalam's 'song of youth' as a mission statement.	4M	CO1	L3
(b)	Write a paragraph on 'Global warming'.	4M	CO1	L2
(c)	Identify the **'Part of speech'** of the Italicized word in the following sentences: (i) The ***group*** went climbing in the mountains. (ii) The play was ***fantastic***. (iii) My friend said, "***Oh***! What a cold weather!" (iv) We didn't spend the night ***there***. (v) We got back home late at night ***but*** we didn't go to sleep immediately. (vi) I want to go ***now***. (vii) There is a mouse ***underneath*** the piano. (viii) ***Masons*** build houses.	4M	CO1	L1
	(OR)			
2(a)	What prevents the author from buying the glass plate in the story "Double Angels"? What does he do next?	4M	CO1	L1
(b)	Write a paragraph on "Present Education System".	4M	CO1	L2
(c)	Change the word as directed by using Prefix/Suffix. (i) Complete(opposite) (ii) logical (opposite) (iii) cheer(adverb) (iv) bore(noun)	4M	CO1	L3
3(a)	Describe Nadella's thoughts on innovation and its importance.	4M	CO2	L2
(b)	Write a letter to the Principal of your college requesting him to provide foreign language training within the college.	4M	CO2	L3
(c)	Identify the verbs and say whether they are Transitive/ Intransitive/Gerund/Auxiliary. (i) They ***thought*** about all the prizes in the competition. (ii) Mark ***eats*** his dinner quickly. (iii) They ***sell*** him the tickets. (iv) ***Swimming*** is my hobby.	4M	CO2	L2
	(OR)			
4(a)	What do the two roads symbolize in the poem "The road not taken"? Based on your interpretation, why does the traveler chose the road not taken?	4M	CO2	L2
(b)	You are Wilson Thomas, the sports captain of your college. Write a letter to Ashoka Sports Store, M.G. Road, Vijayawada, placing an order for a list of sports items and asking for a discount on the catalogue price.	4M	CO2	L3
(c)	Write the meanings of the 'Phrasal verbs' given below: (i) catch up (ii) bring about (iii) look after (iv) give up	4M	CO2	L2

5(a)	Explain Schumacher's concept of "Technology with a human face" and find out how it would tide over the crises of the super-technology of the rich.	4M	CO3	L2
(b)	You have to go to Singapore to work on a software project for your company in Chandigarh. Send an e-mail message to Sandeep Travels (s.tiwari@sandeeptravels.com), asking them to make travel arrangements for you to go to Singapore by air and return after a week.	4M	CO3	L3
(c)	i. Write the 'Synonyms' of the following: a. unflinching b. empower ii. Write the 'Antonyms' of the following: a. accept b. divergent iii. Fill the blanks with appropriate verb forms. a. By this time tomorrow, I _____ (finish) the work. b. Since 1980 the fashions _____ (change) a lot.	4M	CO3	L3
	(OR)			
6(a)	In what way does Wordsworth assist the progress of science.	4M	CO3	L2
(b)	Assume that you are Kapil Singhania, the Managing Director of Innovation Software Limited. Draft a memo to all your sales staff informing them that the company has decided to give an incentive at the rate of 5% to all the sales staff from July 2017.	4M	CO3	L3
(c)	Complete the sentences with an appropriate word chosen from the two in brackets. (i) We were taught the subject by an _____ (eminent/imminent) professor. (ii) My mother gave me a _____ (Compliment/Complement) when I received a gold medal from the University. (iii) He _____ (cited/sighted) the previous example in support of his argument. (iv) I was _____ (appraised/apprised) of the change of capital of A.P only yesterday.	4M	CO3	L2
7(a)	Through the Ruskin Bond's story "The boy who broke the bank", show how listening helped the anecdotes cascade towards finale?	6M	CO4	L2
(b)	Expand the proverb on listening skill "Listening is the beginning of understanding ... Wisdom is the reward of a lifetime listening".	6M	CO4	L2
	(OR)			
8(a)	Narrate the story of "The boy who broke the bank" justifying the significance of listening.	6M	CO4	L1
(b)	Expand the proverb on interview skills "Opportunity seldom knocks twice".	6M	CO4	L2
9(a)	Give the detailed analysis of the interview process from the story "The lighthouse keeper of Aspinwall" by Henryk Sienkiewicz.	6M	CO5	L2
(b)	Imagine you have completed your B.Tech course and you are applying for the post of Junior Engineer post in a core Company. Write a Résumé with covering letter to the Managing Director of the company.	6M	CO5	L3
	(OR)			
10(a)	Characterize Skavinski from "The lighthouse keeper of Aspinwall" of Henryk Sienkiewicz and substantiate the qualities required to achieve success through an interview.	6M	CO5	L2
(b)	Imagine you have completed your B.Tech course and you are applying for the post of software developer in TCS. Write a Résumé with covering letter to the HR manager of the company.	6M	CO5	L3

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22 JAN 2020

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
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B.Tech. (I Semester) Regular/Supplementary Examinations

17FE04-DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA
(ASE,CE,ECE,EEE,EIE,IT&ME)

Time : 3 hours Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Solve the exact differential equation $(5x^4+3x^2y^2-2xy^3)dx+(2x^3y-3x^2y^2-5y^4)dy=0$	6M	CO1	L2
(b)	A body is originally at 80^0C and cools down to 60^0C in 20 minutes. If the temperature of the air is 40^0C, find the temperature of the body after 40 minutes.	6M	CO1	L3
	(OR)			
2(a)	Solve $xydx-(x^2+2y^2)dy=0$	6M	CO1	L2
(b)	Check that the system of parabolas $y^2=4a(x+a)$ is self-orthogonal.	6M	CO1	L3
3(a)	Find the complete solution of $(D^3-6D^2+11D-6)y=e^{-2x}+e^{-3x}$.	6M	CO2	L2
(b)	Applying the method of variation of parameters, find the complete solution of $(D^2+1)y=\cos ecx$.	6M	CO2	L3
	(OR)			
4(a)	Solve $(D^2-4)y=3e^x+Sin3x$.	6M	CO2	L2
(b)	Solve $(D^2+D)y=x^2+2x+4$	6M	CO2	L2
5(a)	Solve $p\tan x+q\tan y=\tan z$.	6M	CO3	L2
(b)	Find the Taylor's series expansion of $e^x\cos y$ in the neighborhood of the point $(1,\frac{\pi}{4})$.	6M	CO3	L1
	(OR)			
6(a)	Form the partial differential equation from $f(x^2+y^2, z^2-xy)=0$.	6M	CO3	L3
(b)	If $u=x+3y^2-z^3$, $v=4x^2yz$, $w=2z^2-xy$, evaluate $\frac{\partial(u,v,w)}{\partial(x,y,z)}$ at $(-1,1,0)$.	6M	CO3	L2
7(a)	Find the non-singular matrices P and Q such that PAQ is in the normal form for the matrix A, where A = $\begin{bmatrix}2 & -1 & 3\\ 1 & 1 & 1\\ 1 & -1 & 1\end{bmatrix}$. Hence find the rank of the matrix A.	6M	CO4	L2

(b)	Find all solutions of the following system of equations, $x + 3y - 2z = 0$, $2x - y + 4z = 0$, $x - 11y + 14z = 0$.	6M	CO4	L3
	(OR)			
8(a)	Find the rank of the matrix by reducing it to normal form of the matrix $A = \begin{bmatrix} 8 & 1 & 3 & 6 \\ 0 & 3 & 2 & 2 \\ -8 & -1 & -3 & -4 \end{bmatrix}$	6M	CO4	L2
(b)	Show that the system $x + y + z = 6$, $x - y + 2z = 5$, $3x + y + z = -8$ is consistent and solve it.	6M	CO4	L3
9.	Verify Caley- Hamilton theorem for $A = \begin{bmatrix} 8 & -8 & 2 \\ 4 & -3 & -2 \\ 3 & -4 & 1 \end{bmatrix}$ and hence find A^4.	12M	CO5	L3
	(OR)			
10(a)	If λ is an Eigen value of a non singular matrix A, then show that $\frac{1}{\lambda}$ is an Eigen value of the matrix A^{-1}.	6M	CO5	L1
(b)	Evaluate the Eigen values and the corresponding Eigen vectors of $\begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$	6M	CO5	L2

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22 JAN 2020

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

17FE05-DIFFERENTIAL EQUATIONS AND NUMERICAL APPLICATIONS
(CSE)

Time : 3 hours Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Investigate the integrating factor of the differential equation and hence find the complete solution of $y(1+xy)dx+x(1-xy)dy=0$.	6M	CO1	L2
(b)	Show that the system of coaxial parabolas $y^2=4a(x+a)$ is self-orthogonal, where 'a' is parameter.	6M	CO1	L2
	(OR)			
2(a)	If the air is maintained at 30°C and the temperature of the body cools from 80°C to 60°C in 12 minutes. Estimate the temperature of the body after 24 minutes.	6M	CO1	L3
(b)	Solve the differential equation $(5x^4+3x^2y^2-2xy^3)dx+(2x^3y-3x^2y^2-5y^4)dy=0$.	6M	CO1	L2
3(a)	Find complete solution of the differential equation $(D^2+4D+3)y=e^{-x}\sin x$.	6M	CO2	L2
(b)	Apply the method of variation of parameters, find the general solution of $y''-6y'+9y=\frac{e^{3x}}{x^2}$.	6M	CO2	L3
	(OR)			
4(a)	Solve $(D^2-4D+13)y=2e^{2x}+13$.	6M	CO2	L2
(b)	Solve $(D^2+3D+2)y=\cos 3x$.	6M	CO2	L2
5(a)	Develop Maclaurin's series expansion of $f(x,y)$ and hence expand $e^x\log(1+y)$ in powers of x and y.	6M	CO3	L3
(b)	Apply Lagrange's multipliers method to find maximum value of $x^m y^n z^p$ subject to the condition $x+y+z=a$.	6M	CO3	L2
	(OR)			
6(a)	If $x=a\cos\theta, y=a\sin\theta, z=z$, then evaluate $\frac{\partial(x,y,z)}{\partial(a,\theta,z)}$.	6M	CO3	L1
(b)	Discuss the extreme values of the function $x^4+y^4-2x^2+4xy$.	6M	CO3	L2
7(a)	Solve $(y^2+z^2)p-xyq+zx=0$.	6M	CO4	L2
(b)	Obtain the partial differential equation by eliminating the arbitrary functions from the equation $z=f(x)+e^y g(x)$.	6M	CO4	L3
	(OR)			

8(a)	Form the partial differential equation from the equation $z = y^2 + 2f(\frac{1}{x} + \log y)$, by eliminating the arbitrary function	6M	CO4	L3
(b)	Solve $x^2(y-z)p + y^2(z-x)q = z^2(x-y)$.	6M	CO4	L2
9(a)	Solve $y' - 4y = 5e^x, y(0) = 0$ by using Taylor's series method and hence estimate the values of 'y' at $x = 0.1, 0.2$.	6M	CO5	L2
(b)	Apply Runge – Kutta fourth order method to solve the initial value problem $y' = xy^2, y(1) = 2$ and hence find y(1.2).	6M	CO5	L2
	(OR)			
10(a)	Apply Euler's method to find $y(1.3)$, given that $\frac{dy}{dx} = 2 + \sqrt{xy}$, $y(1) = 1$ with the step size $h = 0.1$.	6M	CO5	L2
(b)	Solve $y' = x^2 + y^2, y(0) = 0$ by using Picard's series method and hence find y(1).	6M	CO5	L2

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24 JAN 2020

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

17FE13-ENGINEERING PHYSICS
(ASE,CE&ME)

Time : 3 hours Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Explicate the formation of Newton's rings. Deduce the expression for diameter of n^{th} dark ring.	6M	CO1	L3
(b)	In Newton's rings experiment light of wavelength 5000 A is used. Estimate the diameter of 10^{th} dark ring, if the radius of curvature of the Plano lens is 1 m.	6M	CO1	L2
	(OR)			
2(a)	Define Resolving power of Grating and deduce the expression for it.	6M	CO1	L2
(b)	A diffraction grating has 5000 lines/cm. Estimate the maximum number of orders, if the wavelength of incident light is 5000 A.	6M	CO1	L2
3(a)	Show that the reflected and refracted light rays are perpendicular with each other at Brewster's angle.	6M	CO2	L2
(b)	The angle of polarization for a denser medium is 60^o. Calculate the refractive index of the medium.	6M	CO2	L2
	(OR)			
4(a)	Demonstrate the construction and working of Nd-YAG laser.	6M	CO2	L2
(b)	Summarize the applications of lasers.	6M	CO2	L2
5(a)	Deduce the Schrodinger's time independent wave equation.	6M	CO3	L2
(b)	Specify the physical significance of wave function.	6M	CO3	L1
	(OR)			
6(a)	Illustrate the structure of face centered cubic crystal.	6M	CO3	L2
(b)	State and explain Bragg's law.	6M	CO3	L2
7(a)	Distinguish between dia, para and ferro magnetic materials.	6M	CO4	L2
(b)	The susceptibility of a magnetic material is 0.25. The intensity of magnetization (I) of the material is 10^4 A/m. Compute the values of magnetizing force (H), relative permeability (μ_r) and magnetic flux density (B) of the material.	6M	CO4	L3
	(OR)			
8(a)	Demonstrate Weiss theory of Ferro magnetism.	6M	CO4	L2
(b)	Differentiate soft and hard magnetic materials.	6M	CO4	L2
9(a)	State Meissner effect. Show that a material in a superconducting state is perfectly diamagnetic.	6M	CO5	L2
(b)	Enumerate the applications of superconductors.	6M	CO5	L1
	(OR)			
10(a)	Illustrate A.C. Josephson effect.	6M	CO5	L2
(b)	Define and explicate the terms critical temperature and critical magnetic field regarding superconductivity.	6M	CO5	L2

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

17FE15-ENGINEERING CHEMISTRY
(CSE,ECE,EIE&IT)

Time : 3 hours Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No.	Questions	Marks	CO	BL
1(a)	Define standard electrode potential and derive the Nernst equation of electrode potential for a single electrode.	6M	CO1	L2
(b)	Describe the construction and working of Standard Hydrogen Electrode (SHE).	6M	CO1	L2
	(OR)			
2(a)	Distinguish between primary and secondary batteries. List the materials used as anode, cathode and electrolyte in a dry cell.	6M	CO1	L2
(b)	Explain the working of Hydrogen – Oxygen fuel cell.	6M	CO1	L2
3(a)	Define corrosion and write the mechanism of wet corrosion with an example.	6M	CO2	L1
(b)	How the rate of corrosion of a metal is influenced by (i) position in the galvanic series (ii) Relative area of cathode and anode.	6M	CO2	L2
	(OR)			
4(a)	List the different types of oxide layers formed when metals undergo dry corrosion and explain with examples.	6M	CO2	L2
(b)	What is cathodic protection? Illustrate how underground pipelines can be protected from corrosion by cathodic protection.	6M	CO2	L3
5(a)	How do the optical, electrical, mechanical properties change for nanomaterials compared to bulk materials?	6M	CO3	L2
(b)	Define conducting polymers and give two examples. Explain the preparation and conduction process in p-doped conducting polymers.	6M	CO3	L2
	(OR)			
6(a)	Compare and contrast the addition and condensation polymerization methods and give examples.	6M	CO3	L2
(b)	Write the preparation, properties and engineering applications of Buna-S and Thiokol.	6M	CO3	L2
7(a)	Differentiate thermal and photo-chemical reactions.	6M	CO4	L2
(b)	Explain the different types of thermo tropic liquid crystals.	6M	CO4	L2
	(OR)			
8(a)	Illustrate (i) Chemiluminescence (ii) Bio-luminescence with an example.	6M	CO4	L1
(b)	Define liquid crystal. Explain the characterization of liquid crystal phase.	6M	CO4	L2
9(a)	Describe the principle involved in the estimation of weak acid vs strong base by conductometry with an example.	6M	CO5	L2
(b)	Illustrate the various possible vibrational modes of a polyatomic molecule in IR Spectroscopy.	6M	CO5	L2
	(OR)			
10(a)	Explain potentiometric titration involving oxidation and reduction. Give an advantage it over other analytical techniques.	6M	CO5	L2
(b)	Write about the applications of UV-Spectroscopy.	6M	CO5	L2

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

17FE12-APPLIED PHYSICS

(EEE)

Time : 3 hours Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Derive the equations for bright and dark fringes in thin parallel film by reflected light.	6M	CO1	L2
(b)	Distinguish between interference and diffraction.	6M	CO1	L2
	(OR)			
2.	Describe the fraunhofer diffraction due to single slit with intensity distribution. The first diffraction minima due to a single slit diffraction at $\theta = 30^0$ for a light of wavelength $5000A^0$.Estimate the width of the slit.	12M	CO1	L2
3(a)	State and explain Brewster's law? Prove that the reflected and refracted light rays are perpendicular.	6M	CO2	L1
(b)	Illustrate the working principle of Polarimeter .	6M	CO2	L2
	(OR)			
4(a)	Describe the principle of Laser.	6M	CO2	L2
(b)	Derive the expression for energy density of radiation in terms of Einstein coefficients.	6M	CO2	L2
5(a)	Describe de-Broglie hypothesis of matter waves.	6M	CO3	L2
(b)	Summarize the properties of matter waves.	6M	CO3	L2
	(OR)			
6(a)	What are the advantages and drawbacks of classical free electron theory?	6M	CO3	L1
(b)	Classify the materials into conductors, insulators and semiconductors on the basis of band theory.	6M	CO3	L2
7(a)	Derive an expression for Energy Band Gap of a semiconductor.	6M	CO4	L3
(b)	Describe a Solar Cell and write the V- I characteristics of a solar cell.	6M	CO4	L2
	(OR)			
8.	What is Hall effect? Obtain an expression for Hall coefficient. List out the advantages of Hall effect.	12M	CO4	L3
9(a)	Show that the expression $E_i = E + \frac{P}{3\epsilon_0}$ for internal fields in solid dielectrics.	6M	CO5	L2
(b)	Derive an expression for Claussius - Mosotti equation.	6M	CO5	L3
	(OR)			
10(a)	Distinguish between piezoelectricity and ferro electricity.	6M	CO5	L2
(b)	List out the applications of Dielectric materials.	6M	CO5	L1

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27 JAN 2020

R17

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L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.:: A.P.

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

17CI01-COMPUTER PROGRAMMING

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

Time : 3 hours | Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	List out the program development steps to solve a problem.	6M	CO1	L1
(b)	Write a C program to print 1 to N natural numbers.	6M	CO1	L3
	(OR)			
2.	Explain various types of conditional statements available in C language. Give example for each type.	12M	CO1	L2
3(a)	Construct a C program to find the sum and average of given numbers of an array.	6M	CO2	L3
(b)	Define searching. Explain any searching procedure with a suitable example.	6M	CO2	L2
	(OR)			
4(a)	Write a C program to perform the matrix multiplication of two matrices.	6M	CO2	L3
(b)	Write a C program to convert the given string into uppercase.	6M	CO2	L3
5(a)	Define a pointer. How it is declared? Discuss it with suitable example program.	6M	CO3	L2
(b)	Differentiate call by value & call by reference techniques in functions.	6M	CO3	L2
	(OR)			
6.	Describe different types of function prototypes based on parameters and return type with examples.	12M	CO3	L2
7(a)	Define structure. How to create nested structures?	6M	CO4	L2
(b)	Distinguish between structures and arrays.	6M	CO4	L2
	(OR)			
8(a)	Demonstrate the usage of passing a structure to a function.	6M	CO4	L3
(b)	How union members are declared and initialized? Give example.	6M	CO4	L2
9(a)	Describe various Text file and Binary file modes.	6M	CO5	L2
(b)	Write a program to copy contents of one file into another file.	6M	CO5	L3
	(OR)			
10(a)	Discuss the following file handling functions. i) fopen() ii) fclose() iii) fgetc() iv) fputc()	6M	CO5	L2
(b)	What are the file handling functions to access files randomly?	6M	CO5	L1

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29 JAN 2020

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

17ME01-ENGINEERING GRAPHICS

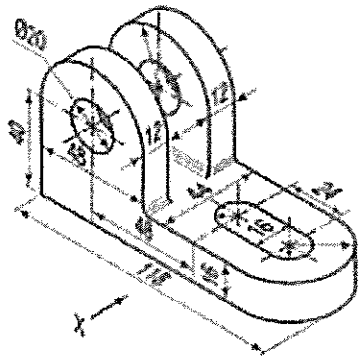
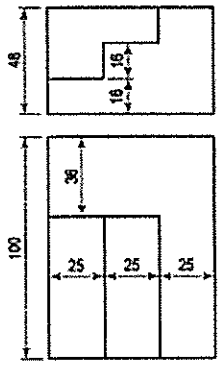
(ASE&ME)

Time : 3 hours Max.Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Construct an ellipse with major axis equal to 120 mm and minor axis equal to 80 mm, through arc of circle method.	6M	CO1	L2
(b)	Construct a hyperbola, when the distance of the focus from the directrix is 65 mm and eccentricity is 3/2.	6M	CO1	L2
	(OR)			
2(a)	Construct an ellipse through oblong method with major axis as 120mm and minor axis as 80mm.	6M	CO1	L2
(b)	Draw an involute of a circle of 40 mm diameter.	6M	CO1	L2
3(a)	A point A is 35mm above the H.P. and 25 mm in front of the V.P. Draw its projections.	6M	CO2	L2
(b)	The top view of a 75 mm long line AB measures 65 mm, while the length of its front view is 50 mm. Its one end A is in the H.P. and 12 mm in front of the V.P. Draw the projections of AB and determine its inclinations with the H.P. and the V.P	6M	CO2	L2
	(OR)			
4(a)	A point *P* is 45 mm from both the reference planes. Draw its projections.	6M	CO2	L2
(b)	A line AB, 65 mm long, has its end A 20 mm above the H.P. and 25 mm in front of the V.P. The end B is 40 mm above the H.P. and 65 mm in front of the V.P. Draw the projections of AB and show its inclinations with the H.P. and the V.P.	6M	CO2	L3
5(a)	A square ABCD of 40 mm side has a corner on the H.P. and 20 mm in front of the V.P. All the sides of the square are equally inclined to the H.P. and parallel to the V.P. Draw its projections and show its traces.	6M	CO3	L2
(b)	Draw the projections of a circle of 50 mm diameter having its plane vertical and inclined at 30° to the V.P. Its centre is 30 mm above the H.P. and 20 mm in front of the V.P. Show also its traces.	6M	CO3	L3
	(OR)			
6(a)	Draw the projections of a regular hexagon of 25 mm side, having one of its sides in the H.P. and inclined at 60° to the V.P., and its surface making an angle of 45° with the H.P.	6M	CO3	L2
(b)	A thin rectangular plate of sides 60 mm x 30 mm has its shorter side in the V.P. and inclined at 30° to the H.P. Project its top view if its front view is a square of 30 mm long sides.	6M	CO3	L2
7(a)	A tetrahedron of 50 mm long edges is resting on the H.P.on one of its faces, with an edge of that face parallel to the V.P. Draw its projections.	6M	CO4	L3
(b)	Draw the projections of a cylinder 75 mm diameter and 100 mm long, lying on the ground with its axis inclined at 30° to the V.P. and parallel to the ground.	6M	CO4	L3
	(OR)			
8(a)	A square pyramid, base 40 mm side and axis 65 mm long, has its base in the V.P. One edge of the base is inclined at 30° to the H.P. and a corner contained by that edge is on the H.P. Draw its projections.	6M	CO4	L3

(b)	Draw the projections of a cone, base 45 mm diameter and axis 50 mm long, when it is resting on the ground on a point on its base circle with the axis making an angle of 30° with the H.P. and 45° with the V.P.	6M	CO4	L3
9.	Construct (i) Front view. (ii) Top view. (iii) Side view from the right of the given isometric view of the component 	12M	CO5	L4
	(OR)			
10.	The orthographic projections of the object is shown in figure below. Draw the isometric view of the object 	12M	CO5	L4

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29 JAN 2020

H.T.No										

R17

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.::A.P.

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

17CE01-BUILDING MATERIALS AND CONSTRUCTION

(CE)

Time : 3 hours Max. Marks:60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Describe about the dressing of stones. Draw the sketches of stones dressed.	6M	CO1	L2
(b)	Distinguish between Fly ash brick and hollow brick.	6M	CO1	L2
	(OR)			
2(a)	Discuss the three important types of rocks and their formation.	6M	CO1	L2
(b)	Describe the manufacturing process of bricks.	6M	CO1	L2
3(a)	Differentiate quick, fat and hydraulic lime.	6M	CO2	L2
(b)	List the ingredients of Portland cement. Discuss the function and limits of each of them.	6M	CO2	L2
	(OR)			
4(a)	List the constituents of limestone. Discuss the importance of each.	6M	CO2	L2
(b)	State the conditions under which you will recommend the following cements. Give also the reasons. (i) Portland Puzzolana cement (ii) Low heat Portland cement (iii) Rapid Hardening cement.	6M	CO2	L2
5(a)	With neat sketch, describe the features of English bond and Flemish bond.	6M	CO3	L2
(b)	State the functions of sand, surkhi and water in mortar. Under what conditions will you recommend cement mortar over lime mortar for masonry?	6M	CO3	L2
	(OR)			
6(a)	Discuss the construction of cavity wall and partition wall in buildings .	6M	CO3	L2
(b)	Enumerate the type of mortars depending upon the material used and also properties of a good mortar.	6M	CO3	L2
7(a)	Explain the importance of foundation and draw neat sketches of different types of footings.	6M	CO4	L2
(b)	Describe king post truss with a neat sketch.	6M	CO4	L2
	(OR)			
8(a)	Explain the functions of Arches and lintels. Give relative merits and demerits of lintels over arches.	6M	CO4	L2
(b)	Explain the following items in case of staircases (i) Landing (ii) Handrail and (iii) pitch.	6M	CO4	L2
9(a)	Explain seasoning of timber. State the objects of seasoning.	6M	CO5	L2
(b)	Explain damp proofing. Discuss the materials used.	6M	CO5	L2
	(OR)			
10(a)	Draw the cross section of a tree and explain the structure of timber.	6M	CO5	L2
(b)	What are the various ingredients of paint? Explain the function of each of them.	6M	CO5	L2

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29 JAN 2020

H.T.No										

R17

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L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.::A.P.

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

17EC02-ELECTRONIC DEVICES AND CIRCUITS

(CSE,ECE&IT)

Time : 3 hours Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Determine the conductivity of silicon atom when the donor impurity of 1 in 10^8 is applied. The intrinsic value of silicon atom is $1.5x10^{10}$ cm^{-3} at 300^0 K. The mobility of the electrons and holes are 1300 cm^2/v-s and 500 cm^2/V-S respectively. The number of silicon atoms is 5 $x10^{25}$ cm^{-3}.	6M	CO1	L3
(b)	Explain Fermi Levels in Intrinsic and Extrinsic Semiconductors.	6M	CO1	L2
	(OR)			
2(a)	Explain the conduction of current in Intrinsic and Extrinsic semiconductors.	6M	CO1	L2
(b)	Classify materials based on Energy band Diagrams and explain.	6M	CO1	L4
3(a)	What are the applications of PN junction diode and Zener diode?	6M	CO2	L1
(b)	Explain the forward and reverse characteristics of Tunnel diode using Energy band Diagrams.	6M	CO4	L2
	(OR)			
4(a)	Examine how a reverse biased Zener diode is different from PN junction diode.	6M	CO4	L3
(b)	Solve the expression for the diode current and draw the forward and reverse characteristics.	6M	CO2	L3
5(a)	Explain the operation of a full wave rectifier with L-section filter. Draw the necessary waves forms.	6M	CO3	L2
(b)	Calculate the value of inductance to use in the inductor filter connected to a full wave Rectifier operating at 60Hz to provide a DC output with 4% Ripple for a 100 Ω load.	6M	CO3	L3
	(OR)			
6(a)	Examine the operation of bridge rectifier with relevant waveforms and derivations.	6M	CO3	L3
(b)	Explain the operation of L-section and π-section filters in Half wave Rectifier.	6M	CO3	L2
7(a)	Recall the symbols of NPN transistor, PNP transistor, n channel JFET, p channel JFET, Enhancement mode n channel MOSFET and Depletion mode n channel MOSFET.	6M	CO3	L1
(b)	Distinguish between the construction and working of an enhancement type MOSFET and a depletion type MOSFET.	6M	CO2	L3
	(OR)			
8(a)	Mention various regions of operation for a transistor and draw the output characteristics of CE configuration mark the regions.	6M	CO2	L1
(b)	Draw the transistor circuit in CB configuration. Sketch the output characteristics. Indicate 'active', 'saturation' and 'cutoff region'. Brief explain the nature of those curves.	6M	CO2	L2
9(a)	Solve the relation for stability factors S, S' and S'' for collector to base bias.	6M	CO5	L3
(b)	Explain the thermistor compensation circuit for variations in I_{CO} for Self-bias circuit.	6M	CO5	L2
	(OR)			
10(a)	List the factors affecting the stability factor.	6M	CO5	L1
(b)	Demonstrate the concept of "Thermal Runaway" and explain how to overcome it. Relate the condition for thermal stability in CE configuration.	6M	CO5	L3

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29 JAN 2020

H.T.No										

R17

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.::A.P.

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

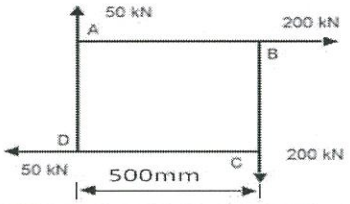
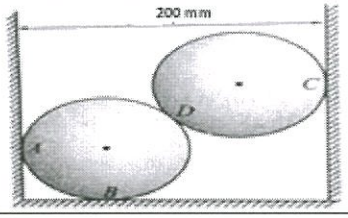
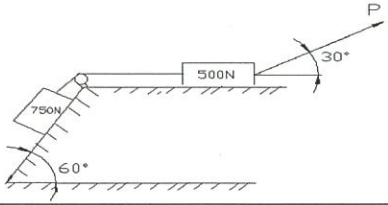
17ME50-BASIC ENGINEERING MECHANICS

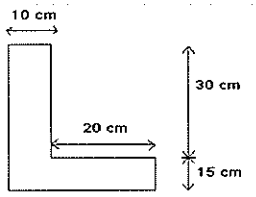
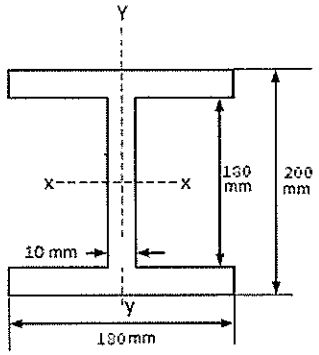
(EEE)

Time : 3 hours Max.Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	State the following (i) Newton's law of gravitation (ii) Parallelogram law of forces (iii) Varignon's theorem.	6M	CO1	L1
(b)	On a square ABCD of size 500mm, forces are acting along the sides in clockwise direction as shown in figure. The force on AB is 200KN, BC is 200KN, CD is 50KN and DA is 50KN. Determine the magnitude, direction and position of the resultant force. 	6M	CO1	L3
	(OR)			
2(a)	The resultant of two forces one of which is 3 times the other is 300N. When the direction of smaller force is reversed, the resultant is 200N. Determine the magnitude of two forces and the angle between them.	6M	CO1	L3
(b)	Two cylinders P and Q are in a channel as shown in figure. The cylinder P (bottom one) has a diameter of 100mm and weight 200N and the cylinder Q (upper one) has a diameter of 180mm and weight 500N. Determine the reaction at all the contact surfaces. 	6M	CO1	L3
3(a)	Define the following terms (i) Limiting friction (ii) Angle of repose (iii) Coefficient of friction.	6M	CO2	L1
(b)	A body of weight 60N is placed on a rough horizontal plane. To just move the body on the horizontal plane, a push of 18N inclined at 20^0 to the horizontal plane is required. Calculate the co-efficient of friction.	6M	CO2	L3
	(OR)			
4.	By recalling the concepts of equilibrium, estimate the value of P in the system shown in the following figure, to cause the motion of 500N block to the right side. Assume the pulley is smooth and the coefficient of friction between other contact surfaces is 0.20. 	12M	CO2	L3
	(OR)			

5(a)	Estimate the centroid co-ordinates of the L-shape lamina shown in the following figure.  	6M	CO3	L3
(b)	Derive an expression for the polar moment of inertia of a circular cross-section of radius 'R'.	6M	CO3	L2
	(OR)			
6.	Compute the area moment of inertia of the I-section shown in figure with respect to X-X and Y-Y axes.  	12M	CO3	L3
7(a)	Differentiate the following (i) Centroid and center of gravity. (ii) Area moment of inertia and mass moment of inertia	6M	CO4	L2
(b)	A hemisphere of diameter 300mm is symmetrically placed on the top base of a cylinder of diameter 200mm and height 300mm. Locate the centre of gravity of the composite volume.	6M	CO4	L3
	(OR)			
8(a)	A concrete block of size 0.60m x 0.75m x 0.50m is cast with a hole of diameter 0.2m and depth of 0.3m at a distance of 0.4m from one of its corners. Locate the centre of gravity of the body. Take the weight of concrete = 25000N/m^3.	6M	CO4	L3
(b)	Derive the expression for mass moment of inertia of uniform rod about an axis passing through the centroid and perpendicular to the length of rod.	6M	CO4	L2
9(a)	A ball is thrown vertically upward with a speed of 15m/s. Determine the time of flight when it returns to its original position. And also find total distance travelled by a ball.	6M	CO5	L3
(b)	A Motorist is traveling at 80kmph, when he observes a traffic light 200m ahead of him turns red. The traffic light is timed to stay red for 10sec. If the motorist wishes to pass the light without stopping, just as it turns green, determine (i) required uniform deceleration of the motor, and (ii) The speed of the motor as it passes the light.	6M	CO5	L4
	(OR)			
10(a)	A projectile is aimed at a target on the horizontal plane and falls 12m short when the angle of projection is 15^0, while it overshoots by 24m when the angle is 45^0. Find the angle of projection to hit the target.	6M	CO5	L3
(b)	A particle is projected with a velocity of 15m/s at an angle of elevation of 60°. Evaluate the following (i) Time required covering the range. (ii) The length of range.	6M	CO5	L3

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31 JAN 2020

H.T.No | | | | | | | | | | |

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.:: A.P.

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

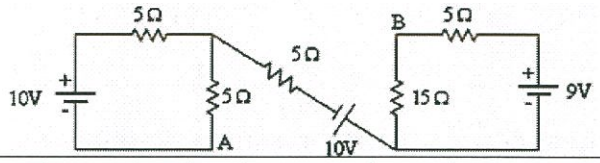
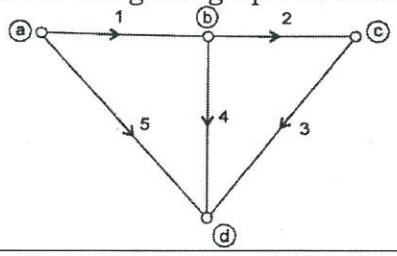
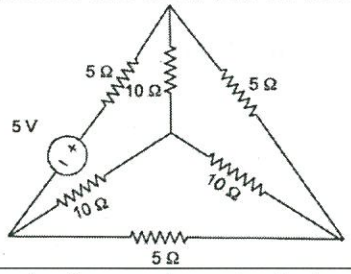
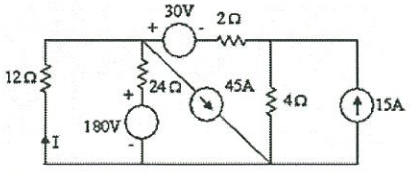
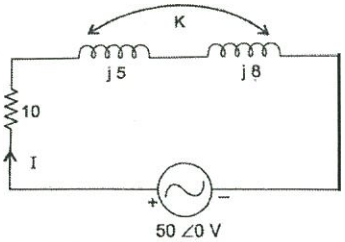
17EC01-ELECTRICAL CIRCUITS AND NETWORKS

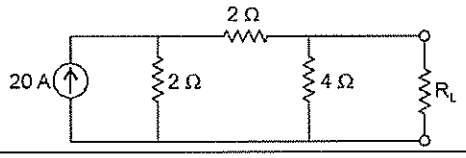
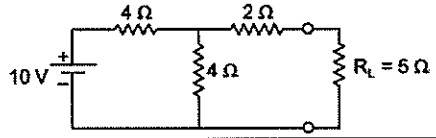
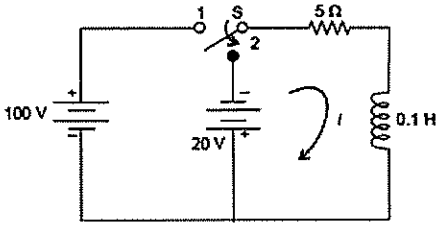
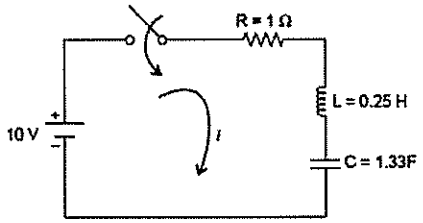
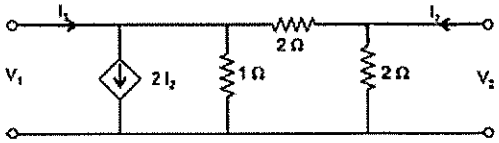
(ECE & EIE)

Time : 3 hours | Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Calculate the potential difference V_{AB} in the circuit using Kirchhoff's laws. 	6M	CO3	L2
(b)	Find the number of trees for the given graph as shown in the below figure. 	6M	CO4	L2
	(OR)			
2(a)	Determine the tie-set matrix for the network as shown in the figure. 	6M	CO4	L2
(b)	Reduce the network shown in figure, to a single loop network by successive source transformation to obtain the current in the 12 Ω resistor. 	6M	CO3	L3
3(a)	The e.m.f. whose instantaneous values is $100\sin(314t-74°)V$ is applied to a circuit and current flowing through the circuit is $20\sin(314t-1.5708°)A$. Find the frequency and values of circuit elements assuming series combination of circuit elements.	6M	CO3	L2
(b)	For the circuit shown in figure, find K and place the dots so that the power output of $50\angle 0^0 V$ source is 168W. 	6M	CO2	L3
	(OR)			

4(a)	Find the RMS value for the periodically alternating wave having the following values for equal intervals of time, changing suddenly from one value to the next value 0, 5, 10, 20, 50, 60, 50, 20, 10, 5, 0, -5,-10, -20 V . Also calculate the form factor for the wave.	6M	CO3	L2
(b)	Two coupled coils with L_1=0.02 H, L_2=0.01 H and K = 0.5 are connected in four different ways series aiding, series opposing, parallel aiding and parallel opposing. What are the four equivalent inductances?	6M	CO2	L2
5(a)	Compare series and parallel resonance circuits.	6M	CO4	L2
(b)	Determine the value of load resistance R_L in the circuit as shown in the figure to receive the maximum power and also find the value of maximum power. 	6M	CO3	L3
	(OR)			
6(a)	A series RLC circuit has $Q = 5.1$ at its resonant frequency of 100kHz. Assuming the power dissipation of the circuit is 100W, when drawing a current of 0.8A. Find the (i) Circuit elements R, L, C (ii) Bandwidth, Δf (iii) Half-power frequencies.	6M	CO3	L2
(b)	Calculate the current and power through the load in the circuit shown in figure, by using Norton's theorem. 	6M	CO3	L3
7.	In the circuit shown in the figure, switch S is put in position 1 for 0.01sec and then changed to position 2. Find the time at which the current is zero and reversing its direction. 	12M	CO3	L3
	(OR)			
8.	In the circuit shown in the figure, the switch is closed at time $t = 0$. Find the transient current assuming zero initial condition. Also find the maximum value of current. 	12M	CO3	L3
9.	For the network shown in the figure, determine the admittance and impedance parameters. 	12M	CO1	L3
	(OR)			
10.	The h-parameters of a certain two-port network are h_{11}=2ohms, h_{12}=4, h_{21}= -4, h_{22}=2 mhos. Find (i) Z-parameters (ii) Y-parameters (iii) ABCD parameters.	12M	CO1	L2

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