LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
L.B. Reddy Nagar :: Mylavaram-521 230 :: NTRDist. :: A.P
Approved by AICTE, New Delhi. Affiliated to JNTUK, Kakinada

B.Tech. (I Semester) (R20) Semester End Examinations (Supplementary) - November 2025

R20

TIME TABLE

Time : 10.00 AM to 01.00 PM **A.Y. 2025-26**

Branch	10-11-2025 (Monday)	11-11-2025 (Tuesday)	12-11-2025 (Wednesday)	13-11-2025 (Thursday)	14-11-2025 (Friday)
AI & DS	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE06 - Engineering Chemistry	20AD01 - Computational Programming	20CS02 - Digital Logic Design
ASE	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE05 - Applied Chemistry	20ME01 - Engineering Graphics	20ME02 - Engineering Mechanics
CE	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE05 - Applied Chemistry	20CE01 - Surveying	20CE02 - Building Materials and Construction
CSE	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE07 - Applied Physics	20CS01 - Programming for Problem Solving using C	20EE02 - Basic Electrical and Electronics Engineering
CSE (AI & ML)	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE07 - Applied Physics	20CS01 - Programming for Problem Solving using C	20CS02 - Digital Logic Design
ECE	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE07 - Applied Physics	20EE01 - Basic Electrical Engineering	20EC01 - Electronic Devices and Circuits
EEE	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE07 - Applied Physics	20CE04 - Basic Civil and Mechanical Engineering	20EE03 - Electronic Circuits and Devices
IT	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE06 - Engineering Chemistry	20CS01 - Programming for Problem Solving using C	20EE02 - Basic Electrical and Electronics Engineering
ME	20FE01 - Professional Communication-I	20FE03 - Differential Equations	20FE05 - Applied Chemistry	20ME01 - Engineering Graphics	20EE02 - Basic Electrical and Electronics Engineering

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

Date: 24-10-2025

CONTROLLER OF EXAMINATIONS

PRINCIPAL

Copy to: 1. Vice-Principal, Deans &HoDs 2. T&P cell, Transport in-charge & Librarian
3. Canteen, PD, Security & Hostels 4. Coordinator-Disciplinary 5. Notice Boards

H.T.No.										

10 NOV 2025

R20

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

B.Tech. (I Semester) Supplementary Examinations

20FE01-PROFESSIONAL COMMUNICATION-I
(Common to All)

Time : 3 hours | Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Rearrange the words to form meaningful questions. (i) was time watched a movie last the we when together? (ii) did join Microsoft when Satya Nadella? (iii) how come does college to he? (iv) do in you the competition participate quiz? (v) place which you do to belong? (vi) what parents you are? (vii) you in English speak can fluently?	7M	CO2	L1
(b)	What are the challenges faced by Nellie Bly when she proposed her idea to tour around the world?	7M	CO1	L3
	(OR)			
2(a)	Write Plural forms for the following nouns: (i) island (ii) crisis (iii) calf (iv) approach (v) index (vi) gunman (vii) roof	7M	CO2	L1
(b)	Write a paragraph of about 70 words on 'My College Campus.'	7M	CO1	L1
3(a)	How was Mr. Ellis's method of teaching different from that of his predecessors?	7M	CO2	L2
(b)	Write a Paragraph of about 70 words on your favourite teacher.	7M	CO1	L3
	(OR)			
4(a)	Write Synonyms for the following words: (i) generous (ii) cheerful (iii) dwindle (iv) fundamental (v) prominent (vi) vital (vii) brilliant.	7M	CO5	L1
(b)	Describe the qualities of Mary Smith that make her very dear to Warren Burton.	7M	CO2	L2
5(a)	Correct the following sentences: (i) What is the end result of the game? (ii) Artificial Intelligence is a new invention in technology. (iii) Malli has bought a new dictionary book. (iv) We should know the past history of our nation. (v) The work is nearly almost finished. (vi) The two twins have the same identical birthmarks on their backs. (vii) Hayati and her sister competed together in the musical talent show.	7M	CO5	L2
(b)	Fill the gaps with the correct tenses. (i) I (learn) _____ English for seven years now. (ii) But last year I (not / work) _____ hard enough for English, that's why my marks (not / be) _____ really that good then. (iii) As I (pass / want) _____ my English exam successfully next year, I (study) _____ harder this term. (iv) During my last summer holidays, my parents (send) _____ me on a language course to London. (v) It (be) _____ great and I think I (learn)_____ a lot. (vi) Before I (go) _____ to London, I (not / enjoy) _____ learning English. (vii) But while I (do) _____ the language course, I (meet) _____ lots of young people from all over the world.	7M	CO5	L2
	(OR)			
6(a)	Elaborate the methods and tools used by a company with distributed workforce to connect its employees.	7M	CO3	L2

(b)	The following sentences have redundant expressions. Rewrite the sentences removing the redundant words/phrases: (i) However but, he refused to acknowledge the fact (ii) Please return back the book within a week (iii) She does not reveal the actual facts (iv) Divya entered into the room quickly (v) They have met together after a long time (vi) Elisha does not know the basic fundamentals of Physics (vii) Fathima is good at advance planning.	7M	CO5	L2
7(a)	Write about Dr. A.P.J. Abdul Kalam's achievements as a scientist. (200 Words)	7M	CO2	L2
(b)	Choose the correct definite or indefinite article: "the", "a", "an" or "x" (zero article) (i) I bought _____ pair of shoes. (ii) I saw __ a movie last night. (iii) They are staying at __hotel. (iv) I think __ woman over there! She is a famous actress. (v) I do not like __ basketball. (vi) That is __ girl I told you about. (vii) __ night is quiet. Let us take awalk!	7M	CO5	L2
	(OR)			
8(a)	Write a short biography of Dr. A.P.J. Abdul Kalam under the following headings: ➢ His parentage and education ➢ His contribution to India's most important works ➢ As a President of India. (200 Words)	7M	CO3	L1
(b)	As an intern at ABC consulting Pvt.Ltd, write an email to your internship Project Manager, Mr.Ramesh, informing about the progress that you are making and some difficulties that you are encountering. Sign the email as Bhuvan / Bhavya. Outline: Thank – challenging – progress – tight schedule – support – report – analytics – guidance – access – doubt – requirements – design.	7M	CO4	L3
9(a)	Write a letter to the Commissioner of the local municipality about the menace of street dogs and the need to take measures to sterilize them.	7M	CO4	L3
(b)	CV Raman showed his brilliance of mind right from his childhood. Comment.	7M	CO2	L1
	(OR)			
10(a)	Discuss the events that led to CV Raman winning the Nobel prize.	7M	CO2	L2
(b)	Write a letter to the Mayor of your city seeking a solution to the problem of water logging in your area.	7M	CO4	L3

****

H.T.No.										

11 NOV 2025

R20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

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

B.Tech. (I Semester) Supplementary Examinations

20FE03-DIFFERENTIAL EQUATIONS

(Common to All)

Time : 3 hours | Max. Marks : 70

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Show that the family of confocal conics $\frac{x^2}{a^2+\lambda}+\frac{y^2}{b^2+\lambda}=1$ is self orthogonal were a,b are given constants.	7M	CO1	L2
(b)	Find the orthogonal trajectories of family of curves $r^2 = a^2 \cos 2\theta$ where a is the parameter.	7M	CO1	L3
	(OR)			
2(a)	Check the exactness of the differential equation $\frac{dy}{dx}+\frac{y\cos x+\sin y+y}{\sin x+x\cos y+x}=0$ and hence find its general solution.	7M	CO1	L3
(b)	Find the complete solution of $y^2\,dx + (x^2 - xy - y^2)dy = 0$.	7M	CO1	L3
3(a)	Find the solution of $(D^2+5D-6)y=\sin 4x\sin x$.	7M	CO2	L2
(b)	Solve $(D^2+4)y=\sec 2x$, by using the method of variation of parameters.	7M	CO2	L3
	(OR)			
4(a)	Solve $(D^2-4D+13)y=e^{2x}\cos 3x$.	7M	CO2	L2
(b)	Apply method of variation of parameters to find the complete solution of $(D^2+a^2)y=\tan ax$.	7M	CO2	L3
5(a)	Solve $\frac{dy}{dx}=y-x,\ y(0)=2$, by using Picard's method upto the third approximation and hence find y(0.1).	7M	CO3	L3
(b)	Find y(0.2), y(0.4) by applying Euler's method for $\frac{dy}{dx}=(x+\sin x), y(0)=1$	7M	CO3	L3
	(OR)			
6(a)	Solve $\frac{dy}{dx}=x^2y-1, y(0)=1$ by applying Taylor's series method and hence evaluate y(0.1).	7M	CO3	L3
(b)	Given that $y'=x^2-y$, $y(0)=1$ determine y(0.1) using Runge - Kutta fourth order method.	7M	CO3	L3
7(a)	Find the series expansion of $e^x \log(1+y)$ about the point (0, 0).	7M	CO4	L2
(b)	Find the maximum or minimum for the function $f(x,y)=a^2-x^2-y^2$.	7M	CO4	L3
	(OR)			
8(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	CO4	L2
(b)	Check if the functions $u = x+y+z$, $v = xy+yz+zx$ and $w = x^2+y^2+z^2$ are functionally dependent or not. If dependent find the relation between them.	7M	CO4	L3
9(a)	Find the partial differential equation by eliminating the constants 'a' and 'b' from $\log(az-1) = x + ay + b$.	7M	CO5	L3
(b)	Find the general solution of the Lagrange's equation $(x^2 - yz)\,p+(y^2 - zx)\,q = z^2-xy$.	7M	CO5	L3
	(OR)			
10(a)	Form the partial differential equation by eliminating the arbitrary function $F(xy + z^2, x + y + z) = 0$.	7M	CO5	L3
(b)	Solve the Lagrange's equation $y^2zp + x^2zq = y^2x$.	7M	CO5	L3

****

H.T.No										

12 NOV 2025

R20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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

B.Tech. (I Semester) Supplementary Examinations

20FE06-ENGINEERING CHEMISTRY

(AI&DS and IT)

Time : 3 hours | Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Explain the construction and working of lead-acid battery.	7M	CO1	L2
(b)	How fuel cell is made? Explain how it produces power.	7M	CO1	L2
	(OR)			
2(a)	Describe calomel electrode with a neat sketch.	7M	CO1	L2
(b)	Summarize the applications of electrochemical series.	7M	CO1	L2
3(a)	Explain mechanism of wet corrosion.	7M	CO2	L2
(b)	State the principle of cathodic protection. How sacrificial anodic protection controls corrosion?	7M	CO2	L2
	(OR)			
4(a)	When does differential aeration corrosion occur? Give an example.	7M	CO2	L2
(b)	How nature of metal influences rate of corrosion?	7M	CO2	L2
5(a)	Discuss the materials used in making GPU and PCBs.	7M	CO3	L2
(b)	How to prepare nanomaterials using gas phase synthesis?	7M	CO3	L2
	(OR)			
6(a)	How catenanes and rotaxanes are characterized?	7M	CO3	L2
(b)	Outline the applications of nano-materials in various fields.	7M	CO3	L2
7(a)	How thermotropic liquid crystals are formed? Give the classification.	7M	CO4	L2
(b)	Summarize the applications of liquid crystals in various fields.	7M	CO4	L2
	(OR)			
8(a)	How to prepare PMMA? Outline its properties and applications.	7M	CO4	L2
(b)	Illustrate copolymerization.	7M	CO4	L2
9(a)	How to estimate the end point of the titration of redox titration using potentiometry?	7M	CO5	L2
(b)	Explain conductometric titration of HCl vs NaOH.	7M	CO5	L2
	(OR)			
10(a)	Describe conductometric titration of weak acid and strong base.	7M	CO5	L2
(b)	Explain determination of ferric ion using KCNS by colorimetry.	7M	CO5	L2

****

12 NOV 2025

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

R20

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

B.Tech. (I Semester) Supplementary Examinations

20FE05-APPLIED CHEMISTRY

Time : 3 hours (ASE, CE, ME) Max. Marks :70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Discuss disadvantage of scale and sludge formation in boilers and explain preventive methods.	7M	CO1	L2
(b)	Describe the process to desalinate brackish water using electrodialysis.	7M	CO1	L2
	(OR)			
2(a)	Explain deionization of water using ion exchangers.	7M	CO1	L2
(b)	Outline the reasons for carry over in boilers and discuss ways to prevent it.	7M	CO1	L2
3(a)	List out the sources of biomass. How to prepare biodiesel from rape seed oil?	7M	CO2	L2
(b)	Discuss the procedure to get petrol using moving bed method.	7M	CO2	L2
	(OR)			
4(a)	How to carry proximate analysis of coal? Mention it's significance.	7M	CO2	L2
(b)	Discuss the advantages of using CNG as fuel.	7M	CO2	L2
5(a)	Justify the following statement, "Calomel electrode is reversible with respect to chloride ions".	7M	CO3	L2
(b)	Discuss applications of electro chemical series.	7M	CO3	L2
	(OR)			
6(a)	Describe the construction and working of Li-ion battery.	7M	CO3	L2
(b)	Explain the construction of fuel cell with a neat diagram and give the equations that show its working.	7M	CO3	L2
7(a)	Explain mechanism of electro chemical corrosion.	7M	CO4	L2
(b)	Illustrate concentration cell corrosion.	7M	CO4	L2
	(OR)			
8(a)	State the principle of cathodic protection. How the sacrificial anodic protection controls corrosion?	7M	CO4	L2
(b)	Discuss effect of environment on rate of corrosion.	7M	CO4	L2
9(a)	Brief account on fibre reinforced composites.	7M	CO5	L2
(b)	Classify the different types of polymerization process.	7M	CO5	L4
	(OR)			
10(a)	Describe properties and applications of Lubricants.	7M	CO5	L1
(b)	Reason out how nano size effects the properties of materials.	7M	CO5	L3

****

H.T.No										

12 NOV 2025

R20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

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

B.Tech. (I Semester) Supplementary Examinations

20FE07-APPLIED PHYSICS

(CSE,CSE(AI&ML),ECE and EEE)

Time : 3 hours Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Define resolving power and explain about the Rayleigh's criterion for resolving power.	7M	CO1	L2
(b)	Calculate the maximum number of orders possible for a grating having 15000lines/inch and for a wave length of 600nm.	7M	CO1	L3
	(OR)			
2(a)	State the principle of superposition and explain the types of interference.	7M	CO1	L1
(b)	Explain the formation of Newton's rings and obtain an expression for the diameters of bright and dark rings.	7M	CO1	L2
3(a)	Explain the structure of optical fiber with a neat sketch.	7M	CO1	L1
(b)	A fiber cable has an acceptance angle of 30^0 and a core refractive index of 1.4. Calculate the refractive index of the cladding.	7M	CO2	L3
	(OR)			
4(a)	Describe the construction and working of Nd-YAG laser.	7M	CO1	L2
(b)	List out various applications of lasers in different fields.	7M	CO2	L3
5(a)	What are the primary assumptions of free electron theory? Mention its drawbacks.	7M	CO3	L1
(b)	Evaluate Fermi function for an energy kT above the Fermi energy.	7M	CO3	L3
	(OR)			
6(a)	Write the normalized wave function for a particle confined in a 1D deep potential well of width 'a'. Hence plot the wave function and probability density function for ground state.	7M	CO1	L1
(b)	Define the term Fermi level (EF). Write the Fermi Dirac distribution function and hence determine the f(E), at a the level 0.5 eV above Fermi level at 1000K.	7M	CO2	L2
7(a)	Write a short note on conductivity of intrinsic and extrinsic semiconductors.	7M	CO4	L2
(b)	State Hall effect. Mention the applications of Hall effect.	7M	CO4	L2
	(OR)			
8(a)	Define drift and diffusion currents and derive expressions for drift and diffusion currents.	7M	CO4	L3
(b)	Obtain Einstein's relations in terms of drift and diffusion coefficients.	7M	CO4	L3
9(a)	What are domains? Explain the hysteresis curve based on domain theory.	7M	CO5	L2
(b)	Define permeability and susceptibility of magnetic materials. Obtain the relations $B = \mu_0(H+I)$ and $\mu_r=(1+\chi)$.	7M	CO5	L2
	(OR)			
10(a)	Obtain an expression for the internal field experienced by an atom inside a dielectric material by using Lorentz method.	10M	CO5	L2
(b)	The dielectric constant of He gas is 1.0000684. Find the electronic polarizability of He atoms if the gas contains 2.7 × 1025 atomsper m^3.	4M	CO5	L2

****

H.T.No.										

13 NOV 2025

R20

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

B.Tech. (I Semester) Supplementary Examinations

13/11/25

20AD01-COMPUTATIONAL PROGRAMMING
(AI&DS)

Time : 3 hours | Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Classify the data types which are supported by C.	7M	CO1	L2
(b)	List the differences between pre test and post test loops. Write a C program to find sum of Natural numbers from 1 to N using for loop.	7M	CO1	L2
	(OR)			
2(a)	Discuss the following with syntax and examples. (i) break (ii) continue (iii) goto	7M	CO1	L2
(b)	State and explain various storage classes in C with example.	7M	CO1	L2
3(a)	What is string? Write a C program that reads a sentence and prints the frequency of each of the vowels and total count of consonants.	7M	CO3	L3
(b)	Write a program for multiplication of two 2-D array.	7M	CO3	L3
	(OR)			
4(a)	Write a C program to read n unsorted numbers to an array of size n and pass the address of this array to a function to sort the numbers in ascending order using bubble sort technique.	7M	CO2	L3
(b)	Write a C program to implement strcmp() , strcat() , strcpy() and strlen().	7M	CO2	L3
5(a)	List and explain elements of functions in C with example.	7M	CO1	L1
(b)	Explain dynamic memory allocation with example.	7M	CO2	L2
	(OR)			
6(a)	Develop a recursive C program to find the sum of the digits of a given number.	7M	CO3	L3
(b)	Write a C program to find the sum of an array of integers using pointers.	7M	CO2	L3
7(a)	Explain Enumerated data type with example.	7M	CO1	L1
(b)	How do you pass structures to functions? Explain with example.	7M	CO2	L2
	(OR)			
8(a)	Discuss nested structures with an example program.	7M	CO3	L2
(b)	Write a C program to insert and display student records dynamically. (Hint: Use pointers to structures).	7M	CO4	L3
9(a)	Discuss about time and space complexity of an algorithm with example.	7M	CO5	L2
(b)	Write a C program to find all even and odd numbers that are entered by user and write even numbers into even.txt file and odd numbers into odd.txt file and display the content of both files.	7M	CO5	L3
	(OR)			
10(a)	Demonstrate the following functions with examples : (i) fseek() (ii) ftell() (iii) rewind() (iv) feof().	7M	CO5	L2
(b)	Write a C program to accessing content from file and writing content into it.	7M	CO5	L3

****

H.T.No										

13 NOV 2025

R20

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

B.Tech. (I Semester) Supplementary Examinations

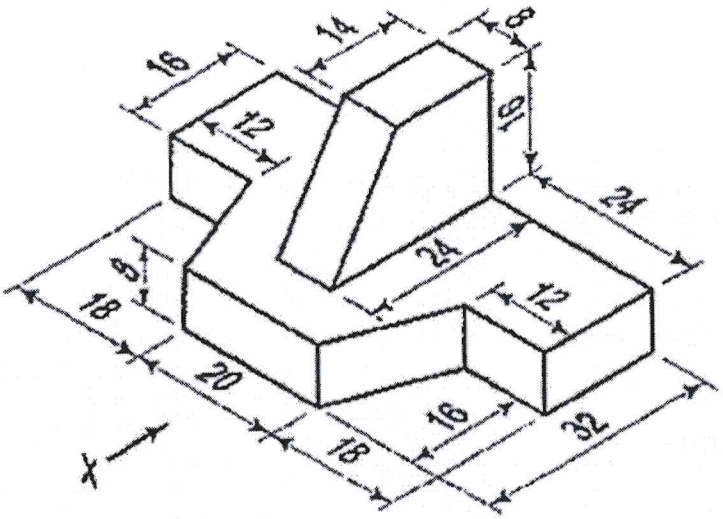
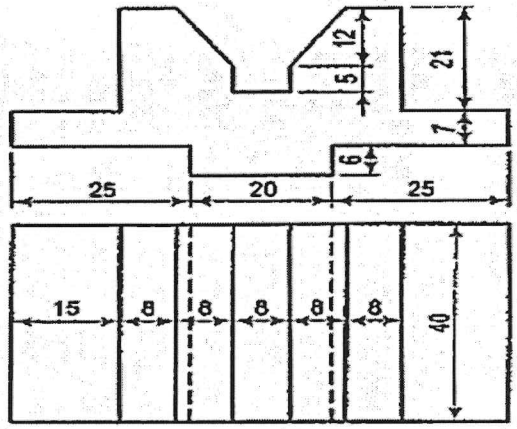
Recd 13/11/25

20ME01-ENGINEERING GRAPHICS
(ASE&ME)

Time : 3 hours Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Construct parabola with the distance from the focus to the directrix as 50mm.	7M	CO1	L1
(b)	Draw an involute of a circle of 35 mm diameter.	7M	CO1	L1
	(OR)			
2(a)	Draw epi-cycloid of a circle of 40 mm diameter, which rolls on another circle of 120 mm diameter for one revolution clockwise. Draw a tangent and normal to it at a point 90 mm from the centre of the directing circle.	7M	CO1	L1
(b)	Two fixed points are 80 mm apart. A point P moves in such way that sum of its distance from two fixed points is always constant and equal to 100 mm. Trace the path of the point and the name the curve.	7M	CO1	L1
3(a)	Draw the projections of the following points on the same ground line keeping the projections 25mm apart (i) A is 40 mm above H.P. and 25 mm behind V.P. (ii) B is 35 mm above H.P. and 20 mm in front of V.P (iii) C is 20 mm below H.P. and 35 mm behind V.P. (iv) D is 30 mm below H.P. and 25 mm in front of V.P	7M	CO2	L2
(b)	Two points A and B are in the H.P. The point A is 30mm in front of V.P., while the point B is behind the V.P. The distance between their projectors is 75mm and the line joining their top views makes an angle of 45^0 with xy. Find the distance of the point B from the V.P.	7M	CO2	L2
	(OR)			
4(a)	A vertical line AB, 75 mm long, has its end A in the H.P. and 25 mm in front of the V.P. A line AC, 100 mm long, is in the H.P and parallel to the V.P. Draw the projections of the line joining B and C and determine its inclination with the H.P.	7M	CO2	L2
(b)	A point A, 50 mm below H.P and 12 mm behind V.P. A point B is 10 mm above H.P. and 25 mm in front of V.P. The distance between the projectors of line AB is 40 mm. Determine the traces of the line AB.	7M	CO2	L2
5(a)	The equilateral triangular plane ABC of side 40 mm has its plane parallel to V.P. and 20 mm away from it. Draw the projections of the plane when one of its sides is parallel to H.P.	7M	CO3	L2

(b)	A hexagonal plane of 30 mm side is resting on one of its edges in H.P. Its surface makes an angle of 45⁰ to H.P and perpendicular to V.P. Draw the projections.	7M	CO3	L2
	(OR)			
6.	A regular pentagon of side 30 mm, the surface of which is making an angle of 45⁰ with the V.P. and one of its edges makes an angle of 60⁰ with the V.P. Draw its projections.	14M	CO3	L2
7(a)	Draw the projections of a cylinder of base 40 mm diameter and axis 50 mm long resting on H.P on its base.	7M	CO4	L2
(b)	A square pyramid of base 35 mm diameter and axis 60 mm long lies on a base corner on the V.P. Its axis inclined at 45⁰ to the V.P. and parallel to the H.P. Draw the projections of the solid.	7M	CO4	L3
	(OR)			
8.	A hexagonal prism of the base side 30mm and axis 60mm is resting on H.P. on its base with a side of the base parallel to V.P. Draw the projections of the solid when its axis inclined at 30⁰ to H.P. and 45⁰ to V.P.	14M	CO4	L3
9.	Draw the following views for the object shown in the figure. (i)Front view (ii) Top view (iii) side view 	14M	CO5	L2
	(OR)			
10.	Draw the isometric view of the following views. 	14M	CO5	L3

****

H.T.No										

13 NOV 2025

R20

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

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

20CE01-SURVEYING
(CE)

Time : 3 hours | Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	To measure a base line, a steel tape 30m long standardized at 15^{0}C with a pull of 100N was used. Find the correction per tape length, if the temperature at the time of measurement was 20^{0}C and the pull exerted was 160N. Weight of 1 cubic cm of steel is 0.0786N. Weight of the tape=8N, E=2.1X10^{5}kg/sq.cm. Coefficient of expansion of the tape per 1^{0}C=7.1 X 10^{-7}.	7M	CO1	L3
(b)	Define the term surveying and describe classifications of surveying based upon on nature of the field.	7M	CO1	L1
	(OR)			
2(a)	Differentiate between the prismatic compass and surveyor compass.	7M	CO1	L2
(b)	(i) Convert the following from WCB to QB WCB of AB =45^0 30' ; WCB of BC =125^0 45' ; WCB of CD =222^0 15'. (ii) Convert the following from QB to WCB QB of AB =N35^{0}30'E; QB of BC =S76^{0}45'W; QB of CD =S22^{0}15'E, QB of DE= S89^{0}30'W.	7M	CO2	L2
3(a)	The following staff readings were taken with a level: 1.268, 1.35, 1.48, 1.89, 2.08, 2.36, 2.00, 1.69 and 2.36. Bench a mark was taken at 1st reading is + 226.540 and the instrument were shifted after 3rd, 5th and 7th readings. Determine the RL's at different points and apply the check.	10M	CO2	L3
(b)	Describe the 'height of instrument' and 'rise and fall' methods of computing the levels.	4M	CO2	L2
	(OR)			
4(a)	Define contour and contour interval. Discuss various uses of contours.	7M	CO2	L2
(b)	What are the methods of locating contours and explain briefly?	7M	CO2	L2
5(a)	The following perpendicular offsets were taken from a chain line to a hedge. Chainage(m): 0, 15, 30, 45, 60, 70, 80, 100 Offsets (m): 7.6, 8.5, 10.7, 12.8, 10.6, 9.5, 8.3, 7.9 Determine the area between the survey line, the hedge and the end offsets by (i) Trapezoidal rule (ii) Simpson's rule.	10M	CO3	L3
(b)	Explain the Meridian method and Coordinate method for measuring area.	4M	CO3	L2
	(OR)			

6(a)	Describe the different methods of measurement of volume from cross-sections.	4M	CO3	L2
(b)	The areas enclosed by the contours in a lake are as follows: Contour (m): 270 275 280 285 290 Area (m^2) : 2050 8400 16300 24600 31500 Determine the volume of water between the contour 270 m and 290mby (i) Trapezoidal formula (ii) Prismoidal formula.	10M	CO3	L3
7(a)	Describe the procedure for measuring horizontal angle by reiteration method of transit theodolite.	7M	CO1	L2
(b)	A staff was held vertically at a distance of 46.2m and 117.6m from the center of theodolite fitted with stadia hairs and the staff intercepts with the telescope horizontal were 0.45m and 1.15m respectively. The instrument was then set over a station P of RL = 150m, the height of instrument axis being 1.38m. The stadia hair readings on a staff held vertically at a station Q were 1.2m, 1.93m, and 2.65m respectively, while the vertical angle was - 9°30'. Determine the distance PQ and RL of Q.	7M	CO4	L3
	(OR)			
8(a)	A Traverse is run to set a line MQ = 2150m at right angles to given line MN. The Length and bearings of Traverse legs are observed as follows : Line / Length(meters) / Bearings MN / --- / 360°00' MO / 750 / 127°00' OP / 1100 / 88°30' PQ / --- / --- Compute the length and bearing of PQ.	7M	CO4	L3
(b)	List the possible sources of error while using theodolite and explain them.	7M	CO1	L1
9(a)	Describe the degree of curve and state the relation between radius and degree of a curve.	7M	CO2	L2
(b)	Explain the advantages of global position system.	7M	CO1	L1
	(OR)			
10(a)	Define a simple curve and discuss the classification of curves.	7M	CO1	L1
(b)	Two straights intersect at chainage 2056.44 m and the angle of intersection is 120°. If the radius of the simple curve to be introduced is 600 m, find the following: (i) Tangent distances (ii) Chainage of the point of Commencement (iii) Chainage of the point of Tangency (iv) Length of the Long Chord.	7M	CO4	L3

****

13 NOV 2025

H.T.No										

R20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

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

B.Tech. (I Semester) Supplementary Examinations

13/11/25

20CS01-PROGRAMMING FOR PROBLEM SOLVING USING C

(CSE,CSE(AI&ML)and IT)

Time : 3 hours Max. Marks : 70

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Differentiate primitive data types and derived data types.	7M	CO1	L2
(b)	Explain the various type casting approaches with an example for each.	7M	CO1	L2
	(OR)			
2(a)	List the selection statements in C. Explain any 3 selection statements with suitable examples.	7M	CO1	L2
(b)	Write a program to findout the sum of n natural numbers and sum of squares of n natural numbers.	7M	CO1	L3
3(a)	Write a C program to accept 'N' numbers as input and find out the smallest element in the array.	7M	CO2	L3
(b)	Define a string. List out any six string handling functions with example.	7M	CO2	L1
	(OR)			
4(a)	Define array. Explain it by inserting 10 elements into it.	7M	CO2	L2
(b)	Define searching. Explain any searching procedure with a suitable example.	7M	CO2	L2
5(a)	Develop a C program to find the smallest and largest elementsin an array using pointers.	7M	CO3	L3
(b)	Distinguish between the following with examples. (i) Global and local variables (ii) Automatic and static variables.	7M	CO3	L3
	(OR)			
6(a)	Write a function to display the multiplication table of a given number when number n is passed as an argument.	7M	CO3	L3
(b)	Discuss different operations can be performed on pointers with examples.	7M	CO3	L2
7(a)	Write a C program using structures to process the student record.	7M	CO4	L3
(b)	Differentiate structures and unions.	7M	CO4	L2
	(OR)			
8(a)	Demonstrate the usage of passing a structure to a function.	7M	CO4	L3
(b)	How union members are declared and initialized? Give example.	7M	CO4	L1
9(a)	Discuss the following file handling functions. (i) fseek() (ii) ftell() (iii) rewind() (iv) feof()	7M	CO5	L2
(b)	Differentiate between text and binary files. Explain all the modes for opening binary files in C.	7M	CO5	L2
	(OR)			
10(a)	Outline the process of opening and closing a file in C.	7M	CO5	L2
(b)	Write a C program to display the content of given file.	7M	CO5	L2

****

H.T.No.										

13 NOV 2025

R20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

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

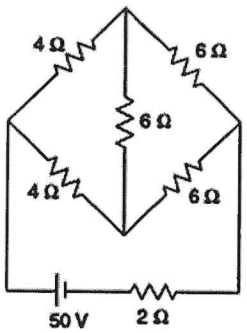
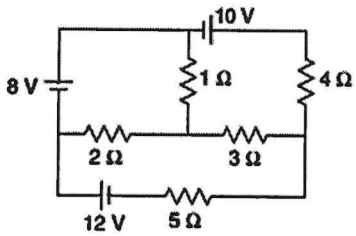
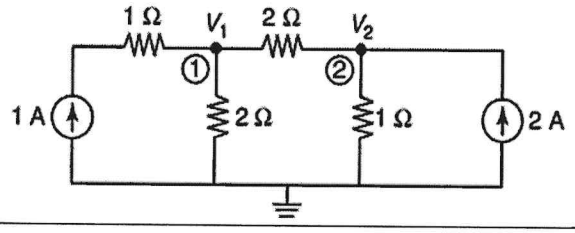
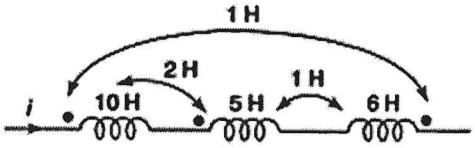
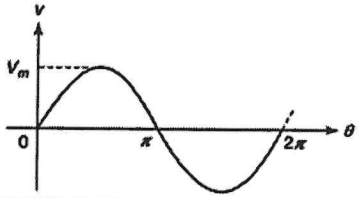
B.Tech. (I Semester) ~~Regular~~/Supplementary Examinations

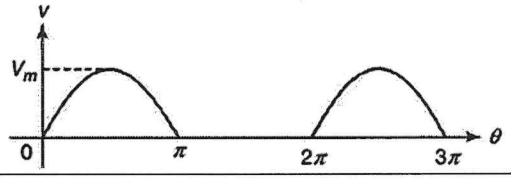
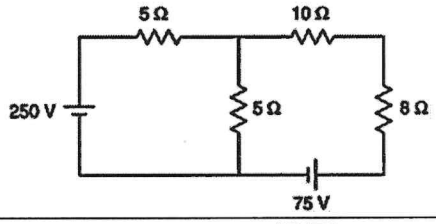
20EE01-BASIC ELECTRICAL ENGINEERING

(ECE)

Time : 3 hours | Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	List different types of dependent sources used in the electrical circuits with neat circuit diagrams.	7M	CO1	L2
(b)	Determine current supplied by the battery in the network. 	7M	CO1	L3
	(OR)			
2(a)	Calculate the current flowing through the 5Ω resistor. 	7M	CO3	L3
(b)	Obtain the voltages at nodes 1 and 2 for the network. 	7M	CO3	L3
3(a)	Summarize the concepts of differential coupling in series induction.	7M	CO1	L2
(b)	Determine the equivalent inductance of the given network below. 	7M	CO1	L3
	(OR)			
4(a)	Determine the average value and R.M.S value of the given signal. 	7M	CO2	L2

(b)	Find the average value, R.M.S value, form factor and peak factor of the given signal. 	7M	CO2	L3
5(a)	Examine the procedure to obtain Thevenin's voltage and Thevenin's resistance in network analysis.	7M	CO3	L2
(b)	Use Thevenin's Theorem to find current through the 8Ω resistor. 	7M	CO3	L3
	(OR)			
6(a)	Outline the concept of bandwidth and quality factor of series RLC circuit.	7M	CO4	L3
(b)	Calculate the resonant frequency, bandwidth, lower and upper frequencies of the band width for series RLC circuit having R=10 Ω, L=0.01H and C=100μF.	7M	CO4	L3
7(a)	Describe types of network functions with necessary equations.	7M	CO1	L2
(b)	Solve poles and zeros of the network functions given below and draw pole-zero plots. (a) $F(s)=\frac{s(s+2)}{(s+1)(s+3)}$ (b) $F(s)=\frac{s(s+1)}{(s+2)^2(s+3)}$ (c) $F(s)=\frac{s(s+2)}{(s+1+j1)(s+1-j1)}$ (d) $F(s)=\frac{(s+1)^2(s+5)}{(s+2)(s+3+j2)(s+3-j2)}$	7M	CO1	L3
	(OR)			
8(a)	Discuss about open-circuit impedance parameters of a two-port network.	7M	CO1	L2
(b)	Interpret the condition for reciprocity in open-circuit impedance parameter with necessary proof.	7M	CO1	L3
9(a)	Explain construction details of transformer and types of transformer with a neat diagram.	7M	CO2	L2
(b)	Interpret about induced EMF equations in primary winding and secondary winding of the single phase transform.	7M	CO2	L3
	(OR)			
10(a)	Explain different types of Electrical Machines and give two applications of each.	7M	CO2	L2
(b)	Derive the EMF equation for DC generator.	7M	CO2	L2

****

H.T.No.										

13 NOV 2025

R20

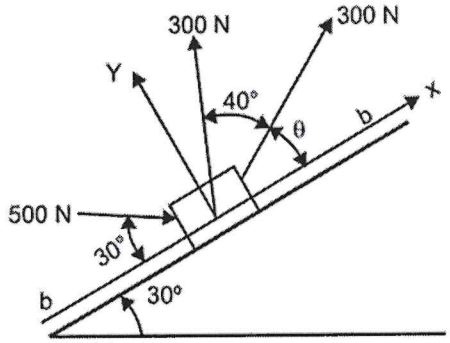
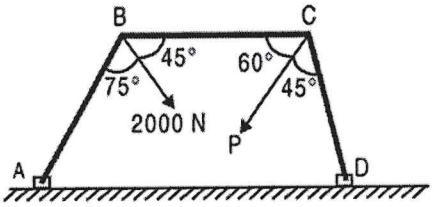
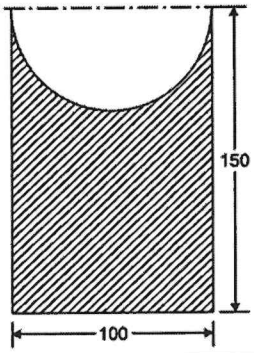
LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.::A.P.

B.Tech. (I Semester) Supplementary Examinations

20CE04-BASIC CIVIL AND MECHANICAL ENGINEERING
(EEE)

Time : 3 hours | Max.Marks :70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Three forces acting at a point are shown in Fig. The direction of the 300 N forcesmay vary, but the angle between them is always 40°. Determine the value of θ for which the result ant of the three forces is directed parallel to b-b. 	7M	CO1	L2
(b)	Three bars, hinged at A and D and pinned at B and C as shown in Figure, form a four-linked mechanism. Determine the value of P that will prevent movement of bars. 	7M	CO1	L3
	(OR)			
2(a)	Locate the centroid of a triangle of base width 'b' and height 'h' by the method of integration.	7M	CO1	L2
(b)	Find the coordinates of the centroid of the shaded area with respect to the axes shown in Fig. 	7M	CO1	L2

3(a)	Define the following terms (i) Path line (ii) Stream Line (iii) Streak Line (iv) stream tube.	7M	CO2	L1
(b)	Explain the working of Piezo meter with neat sketch.	7M	CO2	L2
	(OR)			
4(a)	Discuss the working principle of U-Tube manometer with neat sketch.	7M	CO2	L2
(b)	Classify the different types of manometers.	7M	CO2	L2
5(a)	Differentiate between the Francis and Kaplan turbines.	7M	CO3	L2
(b)	Demonstrate the working of Francis turbine with neat sketch.	7M	CO3	L3
	(OR)			
6(a)	Describe the statement of Draft tube theory.	7M	CO3	L1
(b)	A turbine is to operate under a head of 25m at 200 rpm. The discharge is 9cumec. If the efficiency is 90%, determine: (i) Specific speed of turbine, (ii) Power generated and (iii) Type of turbine.	7M	CO3	L3
7(a)	Explain the following (i) System (ii) Process (iii) Path (iv) Cycle.	7M	CO4	L2
(b)	Determine expression for COP of Heat pump.	7M	CO4	L3
	(OR)			
8(a)	Differentiate the 4-stroke engine with 2-stroke engine.	7M	CO4	L2
(b)	Demonstrate the working of 2-stroke Diesel engine with neat sketch.	7M	CO1	L3
9(a)	Explain the principle of impulse turbine and its components.	7M	CO5	L1
(b)	List seven Comparisons between the impulse and reaction turbine.	7M	CO5	L2
	(OR)			
10(a)	Explain simple open cycle gas turbine plant and each component with neat sketch.	7M	CO5	L1
(b)	Differentiate clearly between a closed cycle gas turbine and an open cycle gas turbine.	7M	CO5	L2

****

H.T.No.										

14 NOV 2025

R20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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

B.Tech. (I Semester) Supplementary Examinations

20CS02-DIGITAL LOGIC DESIGN

(AI&DS and CSE(AI&ML))

Time : 3 hours Max.Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Convert the decimal number 1010 into binary number system, octal number system and hexadecimal number system.	7M	CO1	L3
(b)	What are universal gates and why are they called so? Construct the XOR Gate with Universal Gates.	7M	CO1	L4
	(OR)			
2(a)	Explain any two non-weighted binary codes with example.	7M	CO1	L1
(b)	What is hamming code and how it is used to detect the error and correct the error?	7M	CO1	L2
3(a)	State and prove the absorption theorem. Verify this theorem, with truth table.	7M	CO2	L3
(b)	Simplify the following Boolean function F using Karnaugh map method:F(A, B, C, D)= Σ(2,3,10,11,12,13,14,15). Implement the minimized function F with logic gates.	7M	CO2	L3
	(OR)			
4(a)	Express the Boolean function $F = AB + A'C$ as product of maxterms.	7M	CO2	L3
(b)	Implement the function $F = (AB + CD + E)'$ using logic gates in (i) AND-NOR circuit (ii) NAND-AND circuit.	7M	CO2	L3

5(a)	Implement F(A,B,C,D)=∑m(0,1,3,4,8,9,15) using 16X1 Multiplexer, choose A as input line.	7M	CO3	L3
(b)	Design a 4-bit binary to gray code converter and implement using EX-OR gates.	7M	CO3	L3
	(OR)			
6(a)	Implement Full adder circuit using decoder and logic gates.	7M	CO3	L3
(b)	Draw and explain the operation of 3 to 8 decoder.	7M	CO3	L2
7(a)	State and explain the procedure to perform the conversion of SR Flip-Flop to D Flip-Flop.	7M	CO4	L2
(b)	Construct Characteristic equations and Excitation table for T Flip-Flop.	7M	CO4	L2
	(OR)			
8	Design different types of shift registers with a neat sketch.	14M	CO4	L3
9	Implement the following Boolean functions using PAL. w(A,B,C,D) = ∑m (2,3,8,9,10,12,13) x(A,B,C,D) = ∑m (1,3,4,6,9,12,14) y(A,B,C,D) = ∑m (0,2,6,7,8,9,12,13) z(A,B,C,D) = ∑m (0,2,6,7,8,9,12,13,14).	14M	CO5	L3
	(OR)			
10(a)	Compare and contrast PROM, PLA and PAL.	7M	CO5	L3
(b)	Realize the following Boolean function using PROM $f(x, y, z, w) = \sum m(0, 1, 3, 6, 8, 9, 15)$.	7M	CO5	L3

****

H.T.No										

14 NOV 2025

R20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

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

B.Tech. (I Semester) Supplementary Examinations

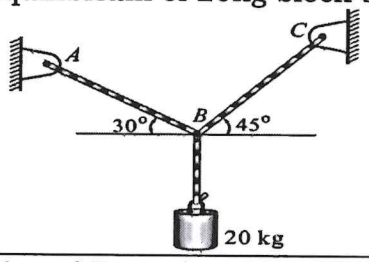
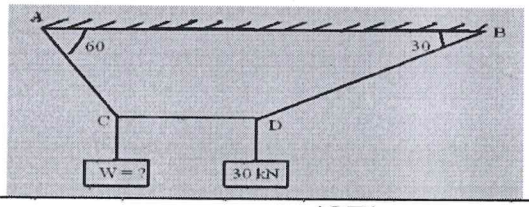
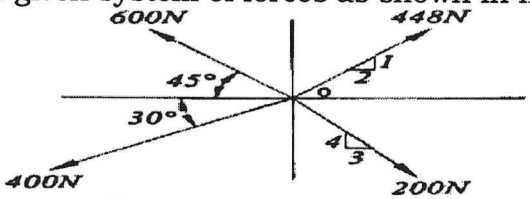
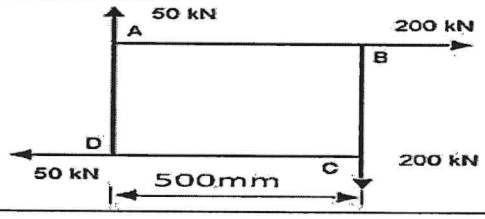
Boooel 14/11/25

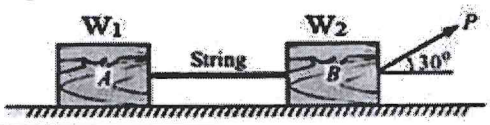
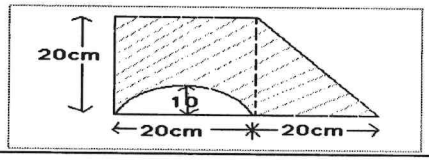
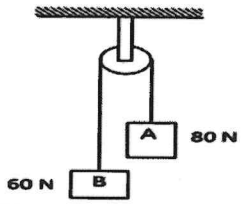
20ME02-ENGINEERING MECHANICS

(ASE)

Time : 3 hours | Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Applying the conditions of equilibrium to determine the tension in cords AB and BC for equilibrium of 20kg block shown in the figure. 	7M	CO1	L3
(b)	A chord supported at A and B carries a load of 10kN at a load of W at C as shown in fig. Evaluate the value of W so that CD remains horizontal. 	7M	CO1	L3
	(OR)			
2(a)	Find resultant of given system of forces as shown in figure. 	7M	CO1	L3
(b)	On a square ABCD of size 500mm, forces are acting along the sides in clockwise direction. 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. 	7M	CO1	L3
3(a)	What is friction? State types and laws of friction.	7M	CO2	L2
(b)	A block of weight 1600N is in contact with a plane inclined at 30⁰ to the horizontal. A force 'p' parallel to the plane and acting up the plane is applied to the body. The coefficient of friction between the contact surfaces is 0.20. Find. (i) the value of 'p' to just cause the motion to impend up the plane, (ii) the value of 'p' to just prevent the motion down the plane, (iii) the magnitude and direction of frictional force if p= 900N.	7M	CO2	L3
	(OR)			

4(a)	In the figure, the two blocks (A=30 N and B=50 N) are placed on rough horizontal plane. Coefficient of friction between the block A and the plane is 0.3 and that between B and plane is 0.2. Find the minimum value of the force P to just move the system. Also find the tension in the string. 	7M	CO2	L3
(b)	Define the terms: (i) Friction; (ii) Coefficient of friction. (iii) limiting friction	7M	CO2	L2
5(a)	Derive the centre of gravity of hemisphere from first principles.	7M	CO3	L2
(b)	Calculate the mass moment of inertia for thin disc has mass density=90KN/m^3, radius =150mm and thickness = 15mm about centroidal axes.	7M	CO3	L3
	(OR)			
6(a)	State and Prove parallel Axis theorem.	7M	CO3	L2
(b)	Identify the centroid co-ordinates of the shaded portion shown in the figure. 	7M	CO3	L3
7(a)	Draw and explain about the motion curves of displacement–time (s-t), velocity–time(v-t), acceleration –time(a-t) briefly.	7M	CO	L2
(b)	A wheel increases its speed from 45 rpm to 90rpm in 2seconds. Calculate (i) angular acceleration of the wheel and (ii) number of revolutions made by the wheel in these 30seconds.	7M	CO4	L3
	(OR)			
8(a)	Define translatory motion. Classify the translatory motion with neat sketches.	7M	CO4	L2
(b)	A particle starts from rest, moves in a straight line, whose equation of motion is given by $s=t^3-2t^2+3$. Determine the velocity and acceleration of the particle after 5seconds.	7M	CO4	L3
9(a)	In a factory, an elevator is required to carry a body of mass 100kg. What will be the force exerted by the body on the floor of the lift, when (i) the lift is moving upwards with retardation of 0.8m/s^2; (ii) moving downwards with a retardation of 0.8m/s^2.	7M	CO5	L3
(b)	Two blocks of A and B of weight 80N and 60N are connected by a string passing through a smooth pulley as shown in figure. Calculate the acceleration of body and the tension in the string. 	7M	CO5	L3
	(OR)			
10.	A flywheel weighing 50KN and having radius of gyration 1 m loses its speed from 400rpm to 280rpm in 2minutes. Calculate (i) the retardation of the flywheel (ii) the retardation torque acting on it (iii) change in its kinetic energy during the above period.	14M	CO5	L4

****

H.T.No.										

14 NOV 2025

R20

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

B.Tech. (I Semester) Supplementary Examinations

20CE02-BUILDING MATERIALS AND CONSTRUCTION
(CE)

Time : 3 hours Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Differentiate between Clamp and kiln burning of Bricks.	7M	CO1	L2
(b)	List the engineering applications/uses of stones as building material.	7M	CO5	L1
	(OR)			
2(a)	Give any four types of building stones and discuss their compositions and properties.	7M	CO1	L2
(b)	Mention at least any six good qualities of bricks.	7M	CO5	L1
3(a)	Discuss in brief about the physical and chemical properties of cement.	7M	CO2	L2
(b)	What steps to be taken while storing lime?	7M	CO2	L1
	(OR)			
4(a)	Classify the lime based on its availability in the Market and Sources of manufacturing.	7M	CO2	L2
(b)	What are Bougue compounds and discuss their significance on cement properties?	7M	CO2	L1
5(a)	Discuss the steps involved in preparation of mortar.	7M	CO4	L2
(b)	What are principles adopted in brick masonry construction?	7M	CO4	L1
	(OR)			
6(a)	Write a short note on special mortars.	7M	CO4	L2
(b)	What factors are to be considered for the selection of stone for Stone masonry?	7M	CO4	L1
7(a)	Details the requirement of a good foundation.	7M	CO4	L2
(b)	Differentiate between substructures and superstructures.	7M	CO4	L2
	(OR)			
8(a)	Briefly discuss the basic components of a typical building with sketch.	7M	CO4	L2
(b)	What are the functions of foundation of a structure?	7M	CO4	L2
9(a)	Discuss about the different method of damp proofing in building construction.	7M	CO5	L1
(b)	List the types of timber trees used in building construction and draw a cross section of exogenous tree.	7M	CO5	L1
	(OR)			
10(a)	What do you mean by damp proof course (DPC) and what are the different materials used for DPC?	7M	CO5	L1
(b)	List out different types of timber and its uses in building construction.	7M	CO5	L1

****

14 NOV 2025

H.T.No										

R20

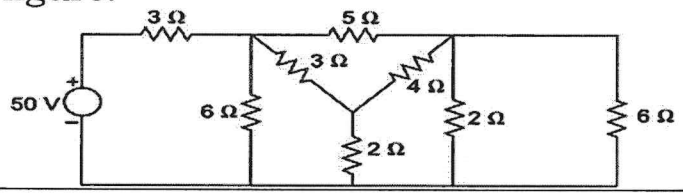
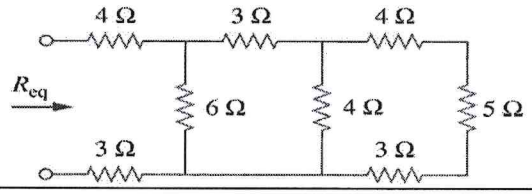
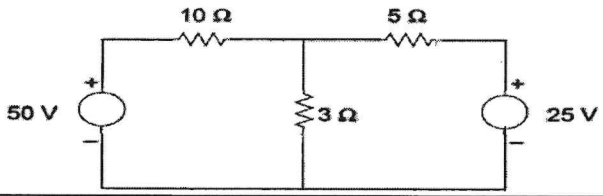
LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
L.B.ReddyNagar :: Mylavaram – 521 230 :: NTR Dist.:: A.P.

B.Tech. (ISemester) Supplementary Examinations

20EE02-BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(CSE, IT&ME)

Time : 3 hours Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

S.No	Questions	Marks	CO	BL
1(a)	Define Ohm's Law and list the limitations of it.	7M	CO1	L1
(b)	Using star-delta transformation, determine the current drawn by the source for the circuit shown in the figure. 	7M	CO1	L3
	(OR)			
2(a)	Illustrate KVL and KCL with an example.	7M	CO1	L2
(b)	Determine the total resistance in the circuit. 	7M	CO1	L3
3(a)	For the resistive network shown in the fig, find the current through 3Ω resistor using the superposition theorem. 	7M	CO1	L3
(b)	Illustrate the peak factor and form factor of a sine-wave.	7M	CO1	L3
	(OR)			
4(a)	State maximum power transfer theorem and Thevenin's theorem with an equivalent circuit diagram.	7M	CO1	L2
(b)	An alternating voltage is given by v=14.14 sin(377 t).Find (i) rms value of the voltage ii) the frequency (iii) the average value.	7M	CO1	L3

5(a)	Illustrate the constructional details of a DC machine.	7M	CO2	L2
(b)	Illustrate the principle of operation of a transformer.	7M	CO2	L2
	(OR)			
6(a)	Discuss various types of DC generators with neat circuit diagrams.	7M	CO2	L2
(b)	Derive the EMF equation of a DC generator.	7M	CO2	L3
7(a)	Demonstrate the forward bias and reverse bias characteristics of the PN junction diode.	7M	CO3	L2
(b)	Draw the circuit diagram of the Full Wave Rectifier and explain its operation with the help of waveforms.	7M	CO3	L2
	(OR)			
8(a)	Explain how zener diode can be used as a voltage regulator.	7M	CO3	L1
(b)	Draw the circuit diagram of full-wave bridge rectifier and explain its operation.	7M	CO3	L1
9(a)	Summarize the constructional details and modes of operation of a transistor in detail.	7M	CO4	L2
(b)	How can the transistor work as an amplifier? Justify.	7M	CO4	L2
	(OR)			
10(a)	Interpret the principle of operation of a MOSFET with a neat sketch.	7M	CO4	L2
(b)	Describe the principle operation of the JFET with a neat sketch.	7M	CO4	L2

****

14 NOV 2025

H.T.No.										

R20

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

20EC01-ELECTRONIC DEVICES AND CIRCUITS
(ECE)

Time : 3 hours | Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Explain the V-I characteristics of PN junction diode in forward and reverse bias.	7M	CO4	L3
(b)	What is tunneling phenomena? Explain the principle of operation of tunnel diode with its characteristics.	7M	CO4	L3
	(OR)			
2(a)	Describe the operation and characteristics of Zener diode	7M	CO2	L2
(b)	Derive an expression for Transition Capacitance in a PN junction diode	7M	CO3	L3
3(a)	Explain how Zener diode can be act as a voltage regulator.	7M	CO3	L3
(b)	Draw the circuit diagram and explain the working of full wave rectifier.	7M	CO3	L3
	(OR)			
4(a)	Draw the circuit diagram of a half wave rectifier circuit and explain its working.	7M	CO3	L3
(b)	Discuss about Zener shunt voltage regulator.	7M	CO3	L3
5(a)	Summarize the operation of transistor using CB configuration with its input and output characteristics.	7M	CO2	L2
(b)	For a transistor $\alpha = 0.99$, determine the β, and γ.	7M	CO3	L3
	(OR)			
6(a)	Summarize the operation of transistor using common Base configuration with its input and output characteristics.	7M	CO2	L2
(b)	A transistor has base current $I_B = 120\mu$ A and collector current $I_C = 2.5$mA. Determine β, α, and Emitter current I_E.	7M	CO3	L3

	20EC01-ELECTRONIC DEVICES AND CIRCUITS			
7(a)	Demonstrate the construction of P channel Depletion mode MOSFET.	7M	CO3	L3
(b)	Mark the Drain and Transfer characteristics of N channel JFET.	7M	CO2	L2
	(OR)			
8(a)	Explain the drain and transfer characteristics of enhancement type MOSFET.	7M	CO4	L4
(b)	Differences between FET and BJT.	7M	CO1	L3
9(a)	Explain the different biasing techniques of JFET.	7M	CO4	L4
(b)	Derive the expression for stability factor of self-bias circuit.	7M	CO4	L4
	(OR)			
10(a)	For a Fixed bias circuit with V_{CC} = 12V, R_C =5KΩ, R_B=100KΩ, β=65, V_{BE}=0.65V. The transistor operates in active region. Determine I_B, V_{CE}, and I_C.	7M	CO3	L3
(b)	Construct Collector to base bias circuit and derive the expression for Q-point parameters.	7M	CO2	L2

****

H.T.No										

14 NOV 2025

R20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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

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

20EE03-ELECTRONIC CIRCUITS AND DEVICES

(EEE)

Time : 3 hours Max. Marks : 70

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Explain the differences between intrinsic and extrinsic semiconductors.	7M	CO1	L2
(b)	Explain the effect of temperature of a diode.	7M	CO1	L2
	(OR)			
2(a)	Show that the Zener diode can be used as a voltage regulator.	7M	CO1	L2
(b)	Explain V-I characteristics of a PN junction diode.	7M	CO1	L2
3.	Derive expressions for rectification efficiency, ripple factor, transformer utilisation factor, form factor and peak factor of an half wave rectifier with resistive load.	14M	CO2	L3
	(OR)			
4(a)	An L-C filter is to be used to provide a DC output with 1% ripple from a full-wave rectifier operating at 50 Hz. Assuming L/C 0.01, determine the required values of L and C.	7M	CO2	L4
(b)	Define line regulation and load regulation in a voltage regulator.	7M	CO2	L1
5(a)	Illustrate the operation of p-n-p transistor with neat sketch	7M	CO3	L2
(b)	A transistor has β=150. Find the collector and base currents, if $I_E = 10mA$.	7M	CO3	L3
	(OR)			
6(a)	Describe the operation of enhancement type MOSFET with the help of neat sketches.	7M	CO3	L2
(b)	Elaborate how FET works as a voltage variable resistor.	7M	CO3	L2
7(a)	Draw a transistor amplifier using self-bias of CE configuration and describe the operation.	7M	CO4	L2
(b)	Evaluate the values of resistors in collector to base bias circuit using the fallowing specifications. V_{CC}=9V, V_{BE}=0.7V, I_C=9.2mA, V_{CE}=4.4V and β=115. Calculate stability factor S.	7M	CO4	L3
	(OR)			
8(a)	Describe Bias compensation using Sensistor.	7M	CO4	L2
(b)	Determine the operating point of the fixed bias with emitter resistor using the following data. R_C=2kΩ, R_B=430kΩ, V_{BE}=0.7V, R_E=1kΩ, β=50 and V_{CC}=20V.	7M	CO4	L3
9(a)	Write short notes on h-parameter representation of transistor.	4M	CO4	L2
(b)	Derive the expression for voltage gain, input impedance and output impedance of CD amplifier configuration under small signal low frequency conditions.	10M	CO4	L3
	(OR)			
10(a)	Using h-parameter model, derive the expressions for A_I and R_i for a emitter follower amplifier circuit.	10M	CO4	L2
(b)	Compare CE, CC & CB amplifier in terms of A_V, A_i, R_i and R_O.	4M	CO4	L2

****