



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) May 2026

TIME TABLE

R20

Time : 10.00 AM to 01.00 PM

A.Y. 2025-26

Branch	11-05-2026 (Monday)	12-05-2026 (Tuesday)	13-05-2026 (Wednesday)	14-05-2026 (Thursday)	15-05-2026 (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.

[Signature]

Date: 25 APR 2026

[Signature]
CONTROLLER OF EXAMINATIONS

[Signature]
PRINCIPAL

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

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

B.Tech. (I Semester) ~~Regular~~/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)	Describe the events that led to Nellie Bly's decision to girdle the earth.	7M	CO2	L1
(b)	Write Plural forms for the following nouns: (i) sister-in-law (ii) tooth (iii) virus (iv) zoo (v) analysis (vi) butterfly (vii) bacterium.	7M	CO1	L1
(OR)				
2(a)	Summarize the preparations that Nellie Bly made before embarking on the world tour.	7M	CO2	L1
(b)	Imagine that you have won a free ticket to tour the world for 10 days, what places would you visit? Why?	7M	CO1	L3
3(a)	You are an administrative assistant. Draft a memo informing the employees about an upcoming computer training programme. Include the following: • what the training is for • who the presenter is, including a brief statement about his/her background • where the training will be held, including the date and time • whether or not lunch and/or any refreshments will be served	7M	CO5	L1
(b)	Elaborate the qualities of Mary Smith that make her a great teacher.	7M	CO2	L2
(OR)				
4(a)	Write Synonyms of the following words: (i) grim (ii) fundamental (iii) relevant (iv) benevolent (v) approve (vi) amazing (vii) fertile.	7M	CO2	L2
(b)	Assume that you are the Director, Product Development. You have announced a date for the launch of a product. But, you want to conduct additional testing on the product and thus the product launch is delayed. Write a Memo informing it to your staff.	7M	CO1	L3
5(a)	Fill in the blanks given below with the correct form of the verb given in brackets. (i) The results _____ (announce) next week. (ii) At the moment I _____ (write) the examination. (iii) He _____ (drink) milk every day. (iv) He _____ (die) in 1994. (v) The movie _____ (start) when we reached the theatre. (vi) Sohail _____ (win) the silver medal in the sprint last year. (vii) If you run fast, you (catch) the bus.	7M	CO3	L3
(b)	What are the methods and tools used by a company with distributed workforce to connect its employees?	7M	CO2	L1
(OR)				
6(a)	Examine how technology has revolutionized the ways in which people connect together for work today.	7M	CO3	L2
(b)	Read the text given below and write a summary in 70-80 words. Engineering is a profession in which scientific knowledge and mathematics is used and experimented with to develop ways that benefit mankind, making it extremely important to society for several reasons. Engineers use the knowledge they have within a specific industry in order to make things work and solve problems, whether this be with transport, medicine, entertainment, space or the environment. In fact, engineering is behind everything.	7M	CO3	L3

20FE01-PROFESSIONAL COMMUNICATION-I

	The environment that engineers work in ranges from offices to studios and laboratories to the outdoors and even underground. Engineering is very closely linked to technology, and the rise of it, which is why it has played a huge part in technological advances including computers, hospital machines, the internet and more. Healthcare has also improved dramatically thanks to advancements in medical technology thanks to engineers. The improvement of medical technology has meant that the discovery of illnesses and treatment has helped to save and improve the lives of many people. New developments are taking place every single day. No one knows exactly how engineers could make a difference to society in the future, but it is guaranteed that they will. New engineering jobs are constantly appearing alongside new and innovative technologies. Though it's easy to overlook the sheer amount of work that engineers do, it is inevitable to understand that there is more to engineering than that is first thought.			
7(a)	Fill in the blanks using 'A', 'An', 'The' or 'No article.' (i) John is ____ European. (ii) ____ information on most topics is available on ____ internet. (iii) He comes to college on ____ foot. (iv) He has ____ interesting stories to share. (v) ____ college hostel does not let us to go out after 6pm. (vi) ____ Isaac Asimov wrote science fiction.	7M	CO5	L3
(b)	Discuss how Kalam contributed to the success of SLV Project.	7M	CO2	L2
(OR)				
8(a)	Explain the role played by Kalam in Integrated Guided Missile Development Programme.	7M	CO5	L3
(b)	Fill in the blanks using 'A', 'An', 'The' or 'No article.' (i) He went to ____ school to meet his former teacher (ii) I saw ____ one-eyed man crossing the road (iii) ____ market will remain closed for two days (iv) He is learning ____ French (v) Rahul is ____ good athlete (vi) Chaitu has ____ little money than Dhruva does (vii) How far is ____ sun from our planet?	7M	CO2	L1
9(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
(OR)				
10(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

12 MAY 2026

H.T.No									
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L.B.Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist.: A.P.

B.Tech. (I Semester) Supplementary Examinations

20FE03-Differential Equations

(Common to All)

9.22 ✓

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)	Solve $(5x^4 + 3x^2y^2 - 2xy^3)dx + (2x^3y - 3x^2y^2 - 5y^4)dy = 0$	7M	CO1	L3
(b)	Find the orthogonal trajectories of family of curves $r^n = a^n \cos n\theta$ where a is the parameter.	7M	CO1	L3
(OR)				
2(a)	Solve $(x^2y - 2xy^2)dx + (3x^2y - x^3)dy = 0$	7M	CO1	L3
(b)	Show that the family of parabolas $y^2 = 4a(x + a)$ is self orthogonal.	7M	CO1	L3
(OR)				
3(a)	Solve $(D^2 - 5D + 6)y = 4e^x + 5$.	7M	CO2	L3
(b)	Apply method of variation of parameters to find the complete solution of $(D^2 + a^2)y = \sec ax$.	7M	CO2	L3
(OR)				
4(a)	Find complete solution of $(D^2 + 1)y = \sin x \cdot \sin 2x$.	7M	CO2	L3
(b)	Solve $(D^2 + 2)y = x^2 e^{3x}$.	7M	CO2	L3
(OR)				
5(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
(OR)				
6(a)	Solve $y' = y + x, y(0) = 1$ by using Picard's method to find $y(0.1)$.	7M	CO3	L3
(b)	Apply modified Euler's method to find an approximate value of y when $x=0.1, x=0.2$ for $\frac{dy}{dx} = x + y^2$ where $y=0$ at $x=0$.	7M	CO3	L3
(OR)				
7(a)	If $u = x + 3y^2 - z^3, v = 4x^2yz$ and $w = 2z^2 - xy$ evaluate $\frac{\partial(u,v,w)}{\partial(x,y,z)}$ at $(-1,1,0)$.	7M	CO4	L2
(b)	If $u = \frac{x+y}{1-xy}$, and $v = \tan^{-1}x + \tan^{-1}y$, find $\frac{\partial(u,v)}{\partial(x,y)}$. Hence prove that u and v are functionally dependent. Find the functional relation between them.	7M	CO4	L3
(OR)				

20FE03-Differential Equations

8(a)	Find the Taylor's series expansion of $e^x \cos y$ in the neighborhood of the point $(1, \frac{\pi}{4})$.	7M	CO4	L2
(b)	Investigate the stationary points of $f(x,y)=x^3+y^3-3axy$ and obtain its maximum and minimum values.	7M	CO4	L3
9(a)	Find the partial differential equation by eliminating 'a' and 'b' from $\log(az-1) = x+ay+b$	7M	CO5	L3
(b)	Solve the Lagrange's equation $y^2 zp + x^2 zq = y^2 x$.	7M	CO5	L3
(OR)				
10(a)	By eliminating arbitrary function, find the partial differential equation from $f(x^2 + y^2, z^2 - xy) = 0$.	7M	CO5	L3
(b)	Solve the Lagrange's equation $(y-z)p + (z-x)q = x-y$.	7M	CO5	L3

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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)	Describe making and working principle of glass electrode.	7M	CO1	L2
(b)	Summarize the applications of electrochemical series.	7M	CO1	L2
(OR)				
2(a)	Explain the construction and working of Li-ion battery.	7M	CO1	L2
(b)	How fuel cell is made? Explain how it produces power.	7M	CO1	L2
3(a)	How the impressed current cathodic protection controls corrosion?	7M	CO2	L2
(b)	Explain effect of environment on rate of corrosion.	7M	CO2	L2
(OR)				
4(a)	Explain mechanism of wet corrosion.	7M	CO2	L2
(b)	Illustrate differential aeration corrosion.	7M	CO2	L2
5(a)	Discuss the structural features of rotaxanes and catenanes.	7M	CO3	L2
(b)	How to prepare nano-materials using gas phase synthesis?	7M	CO3	L2
(OR)				
6(a)	Outline the materials used in making GPU and PCBs.	7M	CO3	L2
(b)	Discuss the applications of nanomaterials.	7M	CO3	L2
7(a)	How to prepare PMMA? Outline its properties and applications.	7M	CO4	L2
(b)	Illustrate copolymerization.	7M	CO4	L2
(OR)				
8(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
9(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
(OR)				
10(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

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B.Tech. (I Semester) Supplementary Examinations

20FE05-APPLIED CHEMISTRY

(ASE,CE&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)	How to remove temporary hardness of water? Which dissolved salts cause permanent hardness to water?	7M	CO1	L2
(b)	Differentiate scales and sludges.	7M	CO1	L2
(OR)				
2(a)	Outline the standards of WHO for potable water.	7M	CO1	L2
(b)	Explain desalination of brackish water using reverse osmosis.	7M	CO1	L2
3(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
(OR)				
4(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
5(a)	Describe the construction of fuel cell with a neat diagram and explain working process of it.	7M	CO3	L2
(b)	Explain the construction and working of lead-acid battery.	7M	CO3	L2
(OR)				
6(a)	State working principle of glass electrode and describe it's making.	7M	CO3	L2
(b)	Discuss making of calomel electrode with a neat diagram and explain its working.	7M	CO3	L2
7(a)	When does differential aeration corrosion occur? Give an example.	7M	CO4	L2
(b)	How nature of metal influences rate of corrosion?	7M	CO4	L2
(OR)				
8(a)	Explain mechanism of wet corrosion.	7M	CO4	L2
(b)	State the principle of cathodic protection. How sacrificial anodic protection controls corrosion?	7M	CO4	L2
9(a)	How to prepare PVC? Write its properties and applications.	7M	CO5	L2
(b)	Outline the characteristics of good lubricant.	7M	CO5	L2
(OR)				
10(a)	Discuss advantages of composite materials.	7M	CO5	L2
(b)	Summarize applications of nano materials.	7M	CO5	L2

H.T.No

13 MAY 2026

R20

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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 term Active medium, Population inversion, Pumping action in connection with theory of LASER. List any four properties of LASER.	7M	CO1	L1
(b)	Name the type of OFC used in short distance signal transmission. Numerical aperture of an optical fibre is 0.4 and if refractive index of core is 1.552. Determine acceptance angle and refractive index of cladding.	7M	CO2	L3
(OR)				
4(a)	Expand the term LASER. Using neat energy level diagrams, explain stimulated absorption, spontaneous emission, stimulated emission processes.	7M	CO1	L2
(b)	What is the working principle of OFC? Draw a neat diagram of OFC indicating acceptance angle and acceptance cone, and propagation of ray of light.	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.	Describe the motion of a particle in one dimensional potential box and obtain its wave functions and energies with a neat sketch.	14M	CO3	L3
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 is electronic polarization? Obtain an expression for electronic polarizability in terms of the radius of an atom.	7M	CO5	L3
(b)	Deduce Claussius-Mosotti equation for a dielectric material.	7M	CO5	L3
(OR)				
10(a)	Explain in detail the classification of magnetic materials into dia, para and ferro magnetic materials.	7M	CO5	L2
(b)	A para magnetic material has a magnetic field intensity of 10^4 A/m. If the susceptibility of the material at room temperature is 3.7×10^{-3} , calculate the magnetization and flux density of the material.	7M	CO5	L3

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

20AD01-COMPUTATIONAL PROGRAMMING
(AI&DS)

g. n. v. ✓

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 flowchart with an example. Explain all the symbols used in flowchart.	7M	CO1	L1
(b)	Write the guidelines to use scanf() and printf() functions in C language and differentiate the usage of these control functions.	7M	CO1	L2
(OR)				
2(a)	Show how break, continue and goto statements are used in a C-program, with example.	7M	CO1	L2
(b)	What is an operator? Explain various types of C operators with an example.	7M	CO1	L1
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	CO2	L3
(b)	Write a program for multiplication of two 2-D array.	7M	CO2	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)	Write a C program to swap two numbers with and without using temporary variable.	7M	CO2	L3
(b)	Write a C-program using functions to generate the Fibonacci series.	7M	CO3	L3
(OR)				
6(a)	Explain recursion. Write a program of c to count the digits of a given number using recursion.	7M	CO3	L4
(b)	Write a program in C to find the sum and mean of all elements in an array using pointers.	7M	CO3	L2
7(a)	Define a structure data type called TimeStruct containing 3 members called hour, minute and second. Develop a program that would assign values to the individual members and display the time in the form 16:40:30.	7M	CO4	L4
(b)	Define structure and explain how it differs from other data types.	7M	CO4	L2
(OR)				
8(a)	Explain the difference between array and structures.	7M	CO4	L2
(b)	Write a c-program using structures to read, write, compute average -marks and display the students scoring above and below the average marks for a class of N students.	7M	CO4	L3
9(a)	Write a program in C to replace a specific text with another text in a file.	7M	CO5	L4
(b)	Explain Binary searching Algorithm with an example.	7M	CO5	L3
(OR)				
10(a)	Explain the following file handling functions: (i) fseek() (ii) ftell() (iii) rewind().	7M	CO5	L1
(b)	Explain the function used for error handling in C.	7M	CO5	L1

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B.Tech. (I Semester) Supplementary Examinations

**20ME01-ENGINEERING GRAPHICS
(ASE&ME)**

gaw ✓

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 epi-cycloid of a circle of 60 mm diameter, which rolls on another circle of 120 mm diameter for one revolution clockwise.	7M	CO1	L1
(OR)				
2(a)	Construct an ellipse when the distance of the focus from the directrix is equal to 60mm and eccentricity is $1/2$.	7M	CO1	L1
(b)	Draw an involute of a circle of 35 mm diameter.	7M	CO1	L1
3(a)	State the quadrant in which the following points are situated. (i) The top view and front view of point A are 30 mm above xy. (ii) The top view and front view of Point B are 20 mm below xy. (iii) The top view of point C is on xy and front view of it is 25 mm above xy. The top view and front view of point D is on xy.	7M	CO2	L2
(b)	The top view of a 75 mm long line measures 55 mm. The line is in the V.P., Its one end being 25 mm above the H.P. Draw its projections.	7M	CO2	L2
(OR)				
4(a)	Draw the projections of the following points on the same ground line keeping the projections 25mm apart (i) A is 20 mm below H.P. and 30 mm in front of V.P (ii) B is 25 mm above H.P. and 10 mm in front of V.P (iii) C is 15 mm below H.P. and 25 mm behind V.P. (iv) D is 35 mm above H.P. and 50 mm behind V.P.	7M	CO2	L2
(b)	The end A of a line AB is 30 mm above H.P. and 5 mm in front of V.P. The end B is 10 mm above H.P. and 25 mm in front of V.P. The distance between the end projectors is 40mm. Draw the projections of the line.	7M	CO2	L2
5.	Draw the projections of a circle of 50 mm diameter having a point on the circumference of the circle in H.P, such that its surface makes an angle of 45° with H.P. The top view of the diameter passing through that point makes an angle of 30° with V.P. Draw the projections.	14M	CO3	L2
(OR)				

ANSWER: YES

An isometric view of a mechanical part. The part has a base plate with a width of 32 and a length of 56. The base plate has a thickness of 8. On the left side, there is a vertical rectangular feature with a width of 16 and a height of 20. On the right side, there is another vertical rectangular feature with a width of 16 and a height of 20. In the center of the base plate, there is a rectangular cutout with a width of 20 and a depth of 16. The cutout is positioned 10 units from the left edge of the base plate and 12 units from the right edge. The overall height of the part is 28, which is the sum of the base thickness (8) and the height of the vertical features (20).

2 of 2

**LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
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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°C with a pull of 100N was used. Find the correction per tape length, if the temperature at the time of measurement was 20°C and the pull exerted was 160N. Weight of 1 cubic cm of steel is 0.0786N. Weight of the tape=8N, $E=2.1 \times 10^5 \text{ kg/sq.cm.}$ Coefficient of expansion of the tape per 1°C= 7.1×10^{-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 = $45^\circ 30'$; WCB of BC = $125^\circ 45'$; WCB of CD = $222^\circ 15'$. (ii) Convert the following from QB to WCB QB of AB = $N35^\circ 30'E$; QB of BC = $S76^\circ 45'W$; QB of CD = $S22^\circ 15'E$, QB of DE= $S89^\circ 30'W$.	7M	CO2	L2
3(a)	The following readings were taken with a dumpy level a long a chain line at a common interval of 15m. The first reading was at a chainage of 165m where the R.L is 98.085. The instrument was shifted after the fourth and ninth readings: 3.150, 2.245, 1.125, 0.860, 3.125, 2.760, 1.835, 1.470, 1.965, 1.225, 2.390 and 3.035m. Mark rules on a page of your notebook in the form of a level book page and enters on it the above readings and find the R.L of the points by: Rise and fall method.	7M	CO2	L3
(b)	Draw with neat sketches the characteristic features of contour lines of the following: i) pond ii) hill c) ridge d) valley and v) vertical cliff.	7M	CO1	L2
(OR)				
4(a)	Define the term Contour and list the applications of conducting contour.	7M	CO1	L1
(b)	Differentiate between Height of collimation method and Rise-and-Fall method.	7M	CO2	L2
5.	The following offsets were taken at 10m intervals from a survey line to irregular boundary line 3.25, 5.60, 4.20, 6.65, 8.75, 6.20, 3.25, 4.20, 5.65 m .Compute the area between the survey line and the irregular boundary line by (i) Average- ordinate rule (ii) Trapezoidal rule.	14M	CO3	L2
(OR)				

20CE01-SURVEYING

6(a)	The following offsets were taken from a chain line to a hedge.							7M	CO3	L2			
	Distance(m)	0	30	60	90	120	150				180		
	Offsets (m)	9.4	10.8	12.5	10.5	14.5	13				7.5		
	Compute the area included between the chain line, the hedge and end offsets by the Sampson's rule.												
(b)	Define the trapezoidal rule. List out the considerations and limitations of this rule.							7M	CO3	L1			
7(a)	Describe the procedure for measuring horizontal angle by repetition method of transit theodolite							7M	CO4	L2			
(b)	Compute the latitude, departure and closing error for the following traverse. Calculate the corrected values using Bowditch's rule.							7M	CO2	L3			
											Line	Distance(m)	Whole Circle Bearing
											AB	89.31	45°10'
											BC	219.76	72°5'
											CD	151.18	161°52'
											DE	159.1	228°43'
	EA	232.26	300°42'										
(OR)													
8(a)	List the possible sources of error while using theodolite and explain them.							7M	CO3	L1			
(b)	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 :							7M	CO4	L2			
											Line	Length(meters)	Bearings
											MN	---	360°00'
											MO	750	127°00'
											OP	1100	88°30'
											PQ	---	---
	Compute the length and bearing of PQ.												
9(a)	Describe the degree of curve and state the relation between radius and degree of a curve.							7M	CO1	L2			
(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	C02	L3			
(OR)													
10(a)	Describe the purpose of using total station in surveying. List out the surveying operations that can be performed using total station. Describe the advantages of total station.							7M	CO1	L2			
(b)	Describe and neat sketch of a circular curve and show the following notation thereon: (i)Back tangent (ii) Forward tangent (iii) Point of commencement (iv) Point of tangency (v) Point of intersection (vi) Long Chord.							7M	CO1	L3			

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14 MAY 2026

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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

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)	Define algorithm and flowchart. Differentiate them.	7M	CO1	L2
(b)	What is an expression? What is the role of operators in it? Explain arithmetic operators with suitable examples.	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 find out the sum of n natural numbers and sum of squares of n natural numbers.	7M	CO1	L3
3(a)	How strings are declared and initialized in C? Explain string input/output functions with an example.	7M	CO2	L3
(b)	Develop a C program that reads N integer numbers and arrange them in ascending order using bubble sort.	7M	CO2	L3
(OR)				
4(a)	List out any 6 pre-defined functions of string. Explain any 3 of them with syntax and examples.	7M	CO2	L3
(b)	Write a program to calculate sum and average of student marks which were stored in array.	7M	CO2	L3
5(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
(OR)				
6(a)	Develop a C program to find the smallest and largest elements in 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
7(a)	Define Structure. Discuss the advantages of structures over arrays.	7M	CO4	L2
(b)	Design a C program that defines a structure employee containing the details such as emp no, emp name, department name and salary. The structure has to store and display details of n employees.	7M	CO4	L3
(OR)				
8(a)	Discuss the use of enumerated (enum) data type with example.	7M	CO4	L2
(b)	What is the use of typedef? Design an application with structure to use typedef.	7M	CO4	L3
9(a)	Explain all the modes for opening files in C.	7M	CO5	L2
(b)	Write a C program to count number of characters, spaces, lines in a file.	7M	CO5	L3
(OR)				
10(a)	Discuss command line arguments in C with an example.	7M	CO5	L3
(b)	Demonstrate the use of fprintf() and fscanf() in file handling.	7M	CO5	L2

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

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

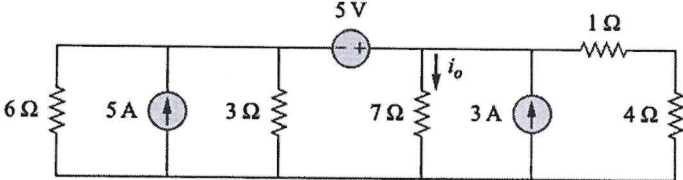
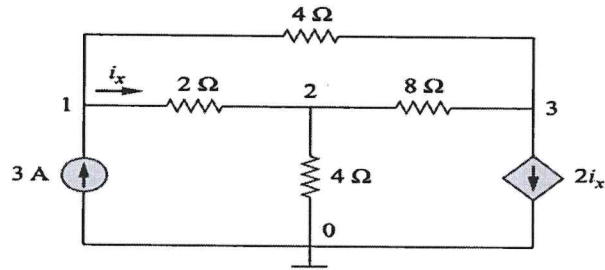
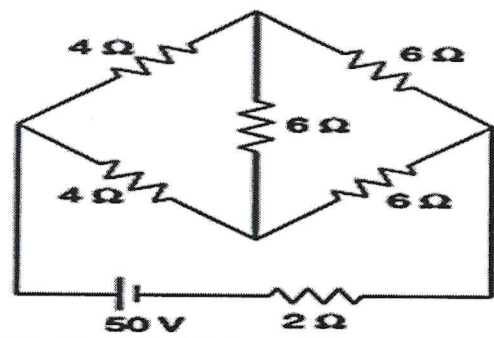
B.Tech. (I Semester) ~~Regular~~/Supplementary Examinations

**20EE01-BASIC ELECTRICAL ENGINEERING
(ECE)**

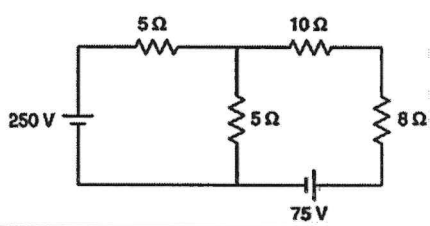
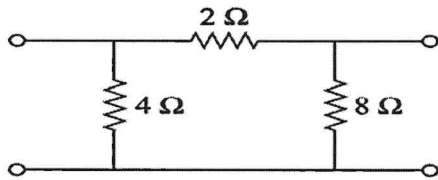
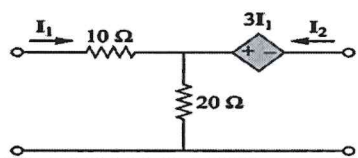
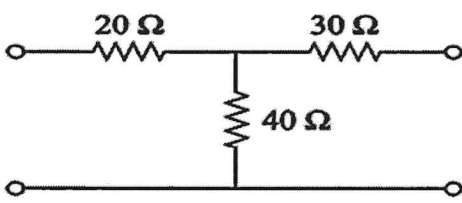
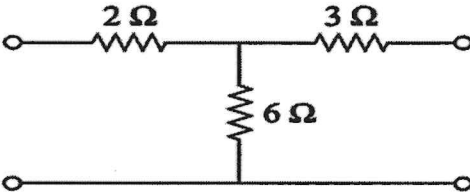
Time : 3 hours

Max. Marks : 70

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	For the following circuit find i_o (use source transformation). 	7M	CO1	L4
(b)	For the following circuit, determine the voltages at the nodes 1, 2, and 3. 	7M	CO1	L3
(OR)				
2(a)	Determine current supplied by the battery in the network. 	7M	CO1	L3
(b)	List different types of dependent sources used in the electrical circuits with neat circuit diagrams.	7M	CO1	L2
3(a)	Explain self-inductance and mutual inductance.	7M	CO1	L2
(b)	In a series RLC circuit, $R = 5 \Omega$, $L = 1 \text{ H}$ and $C = 1 \text{ F}$. A dc voltage of 20 V is applied at $t=0$. Obtain $i(t)$.	7M	CO4	L4
(OR)				
4(a)	Define magnetic flux, mmf and reluctance. Derive the relation between them.	7M	CO1	L2
(b)	Define peak, RMS, Average and instantaneous values, form factor and peak factor of an ac circuits.	7M	CO4	L4

20EE01-BASIC ELECTRICAL ENGINEERING

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 $R=10\Omega$, $L=0.01H$ and $C=100\mu F$.	7M	CO4	L3
7(a)	Determine the Y parameters of the circuit shown in figure. 	7M	CO4	L3
(b)	Determine the transmission parameters of the two-port network shown in figure. 	7M	CO4	L3
(OR)				
8(a)	Determine the z parameters for the circuit 	7M	CO4	L3
(b)	Find the hybrid parameters of the network shown in figure. 	7M	CO4	L3
9(a)	Describe the working principal and operation of DC Motor with neat diagrams.	7M	CO2	L2
(b)	Derive the voltage equation and power equation of DC motor.	7M	CO2	L3
(OR)				
10(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

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15 MAY 2026

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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) 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 following. (i) $(10C)_{16} = ()_{10}$, (ii) $(1234)_8 = ()_2$ (iii) $(10110011)_2 = ()_8$ (iv) $(772)_{10} = ()_{16}$	7M	CO1	L2
(b)	How do you perform BCD addition? Perform BCD addition for $(256)_{10} + (764)_{10}$.	7M	CO1	L2
(OR)				
2	Realize EX-OR and EX-NOR with minimum number of NAND and NOR gates.	14M	CO1	L2
3(a)	State and prove De Morgan's laws.	7M	CO2	L3
(b)	List out and explain the Boolean postulates formulate various algebraic structures with proof.	7M	CO2	L3
(OR)				
4(a)	Minimize the following multiple output functions using K-Map and discuss each step in-detail. $F1 = \sum m(0,2,6,10,11,12,13) + d(3,4,5,14,15)$.	7M	CO2	L3
(b)	Evaluate the Boolean function $F=A+BC$ in Sum of minterms form.	7M	CO2	L5
5(a)	Write short notes on Encoders and Priority Encoders.	7M	CO3	L1
(b)	What are the advantages of ripple carry adder and draw and explain the 4-bit ripple carry adder?	7M	CO3	L3
(OR)				

20CS02-DIGITAL LOGIC DESIGN

6(a)	Implement 3 Line to 8 Line Decoder using Logic Gates and draw the 3 Line to 8 Line Decoder block diagram.	7M	CO3	L4
(b)	Write the advantages and applications of Multiplexer and Demultiplexer.	7M	CO3	L1
7(a)	Compare combinational and sequential circuits. Design SR-latch with control input using NAND gates.	7M	CO4	L2
(b)	Design a MOD-10 synchronous up counter.	7M	CO4	L2
(OR)				
8(a)	Define race around condition of flip-flop. How it can be avoided.	7M	CO4	L2
(b)	Design a 4-bit ripple up counter using T- flip-flops.	7M	CO4	L2
9	Design and implement 3-bit binary to gray code converter using PLA.	14M	CO5	L3
(OR)				
10	A combinational circuit is defined by the functions, $F1 = \sum m(0,3,5,7)$, $F2 = \sum m(4,5,7)$. Implement the circuit with a PLA having 3 inputs, 3 product terms and two outputs.	14M	CO5	L3

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

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

B.Tech. (I Semester) Supplementary Examinations

20ME02-ENGINEERING MECHANICS

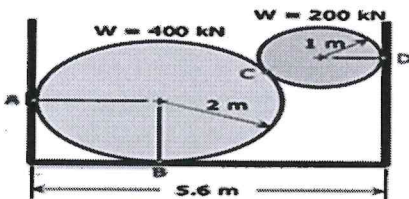
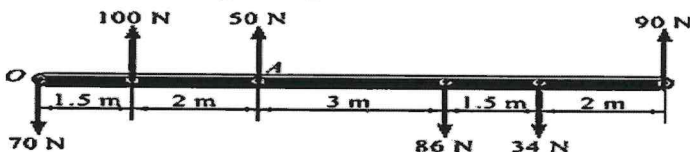
(ASE)

Time : 3 hours

Max. Marks:70

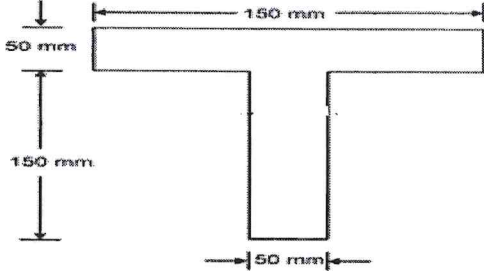
Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	The resultant of forces P and Q acting at an angle 'θ' is equal to $(2n+1)\sqrt{P^2+Q^2}$ and when they act at angle $(90-\theta)$ the resultant is $(2n-1)\sqrt{P^2+Q^2}$. Show that $\tan \theta = \frac{(n-1)}{(n+1)}$.	7M	CO1	L3
(b)	By applying the conditions of equilibrium, evaluate the supporting reactions at all contact points of the system as shown in figure. 	7M	CO1	L3
(OR)				
2(a)	Summarize the following terms (i) Free body diagram (ii) Transmissibility of a force (iii) Composition of forces (iv) Resolution of a force.	7M	CO1	L2
(b)	Evaluate the resultant of the following force system shown in figure. And also convert the same force system into a single force system and a couple at point A. 	7M	CO1	L3
3(a)	Write laws of coulomb friction.	7M	CO2	L2
(b)	A body of weight 1000N is to be pulled up an inclined plane of angle 20° . Coefficient of friction between a body and the plane is 0.258. Evaluate the effort required when it is parallel to the plane.	7M	CO2	L3
(OR)				
4(a)	(i) Discuss the merits and demerits of friction (ii) Explain why is the coefficient of static friction greater than the coefficient of kinetic friction.	7M	CO2	L1
(b)	Describe the following terms (i) Angle of friction (ii) Angle of repose (iii) Cone of friction.	7M	CO2	L1
5(a)	Derive the centre of gravity of right circular cone from first principles.	7M	CO3	L2
(b)	Evaluate the mass moment of inertia of a steel uniform rod of 3.2 m long about an axis passing through one end and perpendicular to the rod. Take density of steel rod is 1200 kg/m^3 .	7M	CO3	L3

(OR)

20ME02-ENGINEERING MECHANICS

6(a)	Derive the centroid coordinates of the semi circular area having radius 'R'.	4M	CO3	L2
(b)	Determine the moment of inertia of the following figure with respect to centroidal axis and top layer of top flange. 	10M	CO3	L3
7(a)	A car covers 100m in 10 seconds, while accelerating uniformly at a rate of 1m/s^2 . Determine (i) initial and final velocities of the car, (ii) distance travelled before coming to this point assuming it started from rest, and (iii) its velocity after the next 10 seconds.	7M	CO4	L3
(b)	A car has an initial speed of 25m/s and a constant deceleration of 3m/s^2 . Determine the velocity of the car when $t=4\text{s}$. What is the displacement of the car during the 4s time interval? How much time is needed to stop the car?	7M	CO4	L3
(OR)				
8(a)	A tower is 100m in height. A particle is dropped from the top of the tower and at the same time another particle is projected upward from the foot of the tower. Both the particles meet at height of 40m. Find the velocity with which the second particle is projected upward.	7M	CO4	L3
(b)	Distinguish (i) kinematics & kinetics (ii) Rectilinear and curvilinear motion.	7M	CO4	L2
9.	A body weighing 1200 N rests on a rough plane inclined at 12° to the horizontal. It is pulled up the plane by means of a flexible rope running parallel to the plane and passing over a light friction less pulley at the top of the plane as shown in figure. The portion of the rope beyond the pulley hangs vertically down and carries a weight of 800 N at its end. If the coefficient of friction for the plane and body is 0.2, find: (i) Tension in rope (ii) Acceleration with which the body moves up the plane, and (iii) The distance moved by the body in 3 sec after starting from rest. 	14M	CO5	L4
(OR)				
10(a)	A motorist enters a freeway at 45 km/h and accelerates uniformly to 99 km/h . From the odometer in the car, the motorist knows that she travelled 0.2 km while accelerating. Estimate (i) the acceleration of the car, (ii) the time required to reach 99 km/h .	10M	CO5	L3
(b)	Write the units of the following quantities: (i) Angular velocity (ii) Angular acceleration (iii) Angular displacement (iv) Work done.	4M	CO5	L2

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15 MAY 2026

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**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

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)	Briefly discuss the various characteristics of good building stone.	7M	CO1	L2
(b)	Discuss the various characteristics of good building bricks.	7M	CO1	L2
(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 the constituents of cement and its functions.	7M	CO2	L2
(b)	Discuss the classification of lime.	7M	CO2	L2
(OR)				
4(a)	Describe any six types of cement along with their application.	7M	CO2	L2
(b)	Differentiate between Fat and Hydraulic lime.	7M	CO2	L2
5(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
(OR)				
6(a)	What are the precautions need to be taken in using different types of mortar?	7M	CO4	L1
(b)	Write a short note on cavity walls.	7M	CO3	L1
7(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
(OR)				
8(a)	What is the purpose of stair? Discuss the requirements of good stair case.	7M	CO3	L2
(b)	Discuss method of construction of tile flooring.	7M	CO3	L2
9(a)	What do you mean by damp proof course (DPC) and what are the different materials used for DPC?	7M	CO3	L1
(b)	List out different types of timber and its uses in building construction.	7M	CO3	L1
(OR)				
10(a)	Mention the constituents of paints and discuss their functions.	7M	CO4	L2
(b)	Discuss the treatment for dampness in foundation.	7M	CO3	L2

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

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

B.Tech. (I Semester) Supplementary Examinations

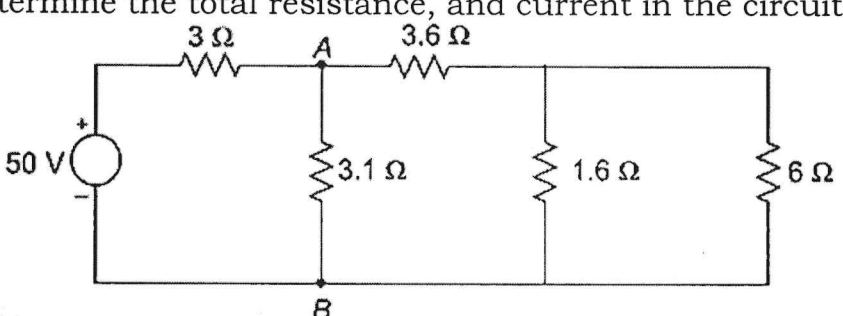
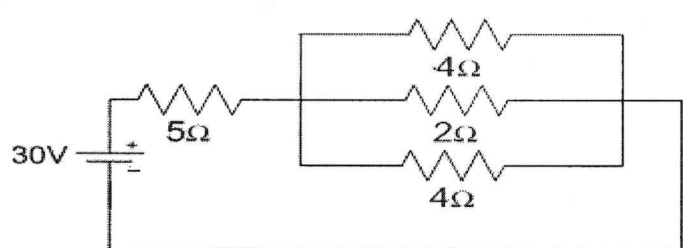
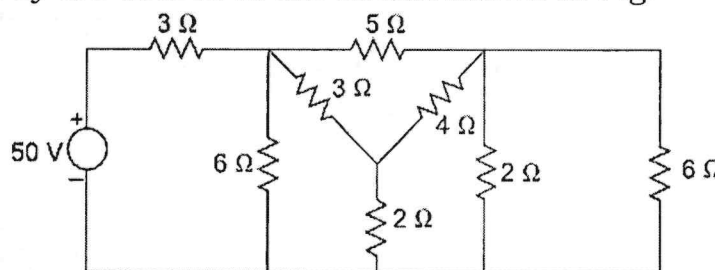
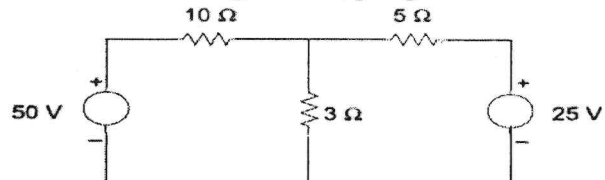
20EE02-BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(CSE,IT&ME)

Time : 3 hours

Max. Marks : 70

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Three resistances $100\ \Omega$, $200\ \Omega$, and $300\ \Omega$ are connected in parallel to a 250-volt supply. Determine the equivalent resistance and current in the circuit.	7M	CO1	L3
(b)	Determine the total resistance, and current in the circuit. 	7M	CO1	L3
(OR)				
2(a)	Determine the total current in the circuit. 	7M	CO1	L3
(b)	Using star-delta transformation, determine the current drawn by the source in the circuit shown in Fig. 	7M	CO1	L3
3(a)	For the resistive network shown in the fig, find the current through $3\ \Omega$ resistor using the superposition theorem. 	7M	CO1	L3

20EE02-BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(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)	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
(OR)				
6(a)	Illustrate the constructional details of a DC machine.	7M	CO2	L2
(b)	Illustrate the principle of operation of a transformer.	7M	CO2	L2
7(a)	Draw the circuit diagram of the Half Wave Rectifier and explain its operation with the help of waveforms.	7M	CO3	L2
(b)	Draw and discuss the V-I characteristics of the Zener diode.	7M	CO3	L2
(OR)				
8(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
9(a)	Summarize the constructional details of NPN and PNP transistors in detail.	7M	CO4	L2
(b)	Interpret the principle of operation of an Enhancement MOSFET with a neat sketch.	7M	CO4	L2
(OR)				
10(a)	Justify how the transistor can work as an amplifier.	7M	CO4	L2
(b)	Describe the principle operation of the JFET with a neat sketch.	7M	CO4	L2

**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

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)	Summarize the V-I characteristics of PN junction diode and define various resistances offered by the diode.	7M	CO2	L2
(b)	The reverse saturation current of Silicon p-n junction diode is 10μ Amps. Calculate the diode current for forward bias voltage of 0.6V at 25°C .	7M	CO3	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)	A Half wave rectifier is supplied from a 230V, 50Hz supply with a step down ration of 5:1 to a resistive load of $10\text{K}\Omega$. The diode forward resistance is 75Ω and transformer secondary resistance is 10Ω . Calculate I_{DC} , V_{DC} , I_{RMS} , V_{RMS} , Ripple factor, Rectifier efficiency.	7M	CO3	L3
(b)	Select the best Filter for converting AC to DC and derive the expression for Ripple factor of a Full wave rectifier.	7M	CO4	L4
(OR)				
4(a)	Sketch the Full wave rectifier circuit using Center tapped transformer and summarize its operation with applied Sinusoidal signal as input.	7M	CO4	L4
(b)	Illustrate the need of filter and derive the expression for ripple factor of a full wave rectifier using Capacitor filter.	7M	CO4	L4
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)	The Common base current gain of transistor is 0.96. If the emitter current is 10Ma , estimate the base current I_B .	7M	CO3	L3
(b)	Infer the best mode of a transistor configuration to have medium Current gain and draw circuit diagram and prove it.	7M	CO4	L4
7(a)	Demonstrate the construction and operation of n channel JFET with neat sketch.	7M	CO3	L3
(b)	Differentiate BJT and FET.	7M	CO2	L2
(OR)				
8(a)	Justify, why MOSFET have high input impedance, JFET has medium input impedance and BJT has low input impedance.	7M	CO3	L3
(b)	How a MOSFET can be used as Capacitor and interpret with its diagram.	7M	CO3	L3
9(a)	Discuss Diode compensation technique for V_{BE} to have good stability of operation of BJT.	7M	CO2	L2
(b)	Derive the expression for stability factor 'S' using general procedure.	7M	CO3	L3
(OR)				
10(a)	Define stability factors S, S' & S''	7M	CO2	L1
(b)	Model a Collector to base bias circuit for the given specification $V_{CC} = 15\text{V}$, $V_{CE} = 5\text{V}$, $V_{BE} = 0.7\text{V}$, $I_C = 5\text{Ma}$ and $\beta = 100$.	7M	CO3	L3

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

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

B.Tech. (I Semester) 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)	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
(OR)				
2(a)	Explain the differences between intrinsic and extrinsic semiconductors.	7M	CO1	L2
(b)	Explain the effect of temperature of a diode.	7M	CO1	L2
3(a)	Draw and explain the circuit of a half-wave rectifier with capacitor filter.	7M	CO2	L2
(b)	Describe L-section and π -section filter with diagrams.	7M	CO2	L2
(OR)				
4(a)	With the support of neat waveforms & diagrams, analyze the full wave bridge rectifier.	7M	CO2	L2
(b)	Determine the ripple factors of an L-section filter and Capacitive filter with $C=50\mu F$, $V_{dc}=12V$, $R_L=10 K\Omega$, $f=50Hz$ and $L=10H$ used with FWR.	7M	CO2	L3
5(a)	Draw and explain the input and output characteristics of BJT in common emitter configuration.	7M	CO3	L2
(b)	Give the comparison between CB, CE and CC configurations of BJT.	7M	CO3	L2
(OR)				
6(a)	Derive the relationship between α and β .	7M	CO3	L2
(b)	Explain the four distinct regions of the output characteristics of a JFET.	7M	CO3	L2
7(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. $R_C=2k\Omega$, $R_B=430k\Omega$, $V_{BE}=0.7V$, $R_E=1k\Omega$, $\beta=50$ and $V_{CC}=20V$.	7M	CO4	L3
(OR)				
8(a)	How will you provide temperature compensation for the variations of V_{BE} and stabilization of the operating point?	10M	CO4	L3
(b)	What three factors contribute to thermal instability?	4M	CO4	L2
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