



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

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

B.Tech. (VII Semester) (R17) Semester End Examinations (Supplementary) - October 2025 (2018, 2019 Regular admitted batches and 2020 Lateral Entry admitted batch only)

TIME TABLE

R17

TIME : 10.00 AM to 01.00 PM

A.Y. 2025-26

DATE	ASE	CE	CSE	ECE	EEE	EIE	IT	ME
24-10-2025 (Friday)	17AE24 - Mechanics of Composites	17CE28 - Estimation and Quantity Surveying	17CI18 - Big Data Analytics	17EC27 - Microwave Engineering	17EE21 - Power System Protection	17EI15 - PC Based Instrumentation	17CI18 - Big Data Analytics	17ME28 - Refrigeration and Air Conditioning
25-10-2025 (Saturday)	17AE25 - Computational Fluid Dynamics	17CE29 - Remote Sensing and GIS Applications	17CI19 - Internet of Things	17EC28 - Optical Communications	17EE22 - Power Systems Operation and Control	17EI16 - PLC and SCADA	17CI19 - Internet of Things	17ME29 - Robotics
27-10-2025 (Monday)	17AE26 - Instrumentation, Measurements and Experiments in Fluids	17CE30 - Design of Reinforced Concrete Structures - II	17CI20 - Information Security	17EC29 - Embedded System Design	17EE23 - Solid State Drives	17EI17 - Analytical Instrumentation	17CI29 - Cloud Computing	17ME30 - Metrology and Instrumentation
Program Elective - III								
28-10-2025 (Tuesday)	17AE28 - Introduction to Space Technology	17CE31 - Pre-stressed Concrete	17CI23 - Artificial Intelligence	17EC32 - Satellite Communications 17EC33 - Digital Image Processing	17EE26 - Advanced Control Systems 17EE24 - Intelligent Control Systems	17EI18 - Micro Electro Mechanical Systems	17CI27 - Software Requirements Engineering 17IT07 - Android Programming	17ME33 - Production Planning and Control
Program Elective - IV								
29-10-2025 (Wednesday)	17AE33 - Theory of Vibrations	17CE35 - Environmental Engineering	17CI26 - Pattern Recognition	17EC34 - Medical Electronics 17EC35 - Advanced Microcontrollers 17EC36 - Mobile Computing 17EC37 - DSP Processors	17EE28 - Energy Conservation and Audit	17EI23 - Instrumentation in Petro Chemical Industries	17IT12 - Design Patterns	17ME34 - Power Plant Engineering 17ME36 - Total Quality Management 17ME35 - Additive Manufacturing
Open Elective - II								
30-10-2025 (Thursday)	17EC80 - Satellite Technology	17EE81 - Utilization of Electrical Energy 17IT80 - Introduction to Database	17CE80 - Basic Civil Engineering	17IT80 - Introduction to Database	17CS80 - Java Programming	17EC80 - Satellite Technology	17EE81 - Utilization of Electrical Energy	17CE80 - Basic Civil Engineering 17EE81 - Utilization of Electrical Energy 17EI80 - Instrumentation Technology 17IT80 - Introduction to Database
Add on course - III								
31-10-2025 (Friday)	17AE92 - Airport Design	17CE92 - Environmental Sanitation	17CS92 - Information Retrieval Systems	17EC92 - Communication Networks	17EE92 - High Voltage Engineering	17EI92 - Telemetry and Telemedicine	17IT92 - Bio-Informatics	17ME92 - Computer Integrated Manufacturing

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

Date: 06-10-2025

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

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L.B. Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist.:A.P.
 B.Tech. (VII Semester) Regular/Supplementary Examinations

17CE28-ESTIMATION AND QUANTITY SURVEYING (CE)

1805009
24/10/21

Time : 3 hours

Max. Marks : 60

Answer one question from each unit
 All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1.	<p>Determine the following quantities for the step as shown below (i) Earthwork in excavation (ii) Concrete in foundation (iii) Brickwork (iv) Finishing 20 mm cement plastered.</p>	12M	CO1	L3
(OR)				
2(a)	Determine the quantity of brickwork in a semicircular arch of 2.00m span, thickness of the arch is 30 cm and the breadth of the wall is 40cm.	6M	CO1	L3
(b)	Describe the following main items of work. (i) R.C.C. and R.B. work (ii) Flooring and Roofing.	6M	CO1	L2
3(a)	Distinguish main reinforcement and lateral reinforcement in R.C.C column.	6M	CO2	L2
(b)	Derive the expression for 30 degree cranked or bent up bars.	6M	CO2	L2
(OR)				
4(a)	What is meant by "Lift" in earth work and explain briefly with sketch.	6M	CO2	L2
(b)	Calculate the quantity of earthwork by three methods for 200m length for a position of road in a uniform ground the heights of bank at the two ends being 1.00m and 1.60m. The formation width is 10m and side slope 2:1(H:V). Assume that there is no transverse slope.	6M	CO2	L3
5.	Give standard specifications for the items in the construction of class 'B' residential building: (i) Footing and plinth (ii) Super structure (iii) Roofs (iv) D.P.C.	12M	CO3	L2
(OR)				
6(a)	Discuss the general specifications of a second class building.	6M	CO3	L2
(b)	Summarize about the detailed specifications of laying cement concrete in R.C.C. work.	6M	CO3	L2
7(a)	Analyze the rate of 2.5 cm thick cc floor 1:2:4 per sq m.	6M	CO4	L3
(b)	Describe in detail about the approximate estimate in P.W.D. works.	6M	CO4	L2
(OR)				
8.	Work out the unit rates for the following items of work. (i) Cement Concrete (1:4:8) (ii) Brick work in CM(1:4) (iii) 20 mm thick plastering in CM(1:5).	12M	CO4	L2
9(a)	Differentiate between cost and value.	6M	CO5	L2
(b)	Define and describe scrap value and salvage value.	6M	CO5	L1
(OR)				
10(a)	Define and describe about depreciation in valuation.	6M	CO5	L2
(b)	Define the following terms: (i) Outgoings (ii) Gross income (iii) Net income.	6M	CO5	L1



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

Buwalda
25/10/23

17ME29-ROBOTICS

(ME)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Discuss the working of Mechanical grippers.	6M	CO1	L2
(b)	Illustrate and explain the Degree of freedom of a Robot wrist.	6M	CO1	L2
(OR)				
2(a)	Explain in detail about the robot anatomy.	6M	CO1	L2
(b)	Describe briefly the types of end effectors.	6M	CO1	L3
3(a)	Design Cartesian coordinate system robot with actuators and sensors at appropriate positions.	6M	CO2	L3
(b)	Elucidate the basic principle of tachometer.	6M	CO2	L2
(OR)				
4(a)	Differentiate Hydraulic, Pneumatic and Electric actuators.	6M	CO2	L2
(b)	Describe the use of velocity sensors in Robotics.	6M	CO2	L2
5(a)	Obtain the DH parameters and thereby find the forward kinematic equation for a RRR type configured manipulator.	6M	CO3	L2
(b)	If R represents a rotation of 90° about y_0 followed by a rotation of 60° about z_1 , find the equivalent axis angle representation of R. Sketch the initial and final frames and the equivalent axis vector K.	6M	CO3	L3
(OR)				
6(a)	Derive the generalized equation for D-H convention.	6M	CO3	L3
(b)	Derive the forward kinematics matrix for an articulated robot arm (3-axis) using DH convention.	6M	CO3	L3
7(a)	Define and explain a geometric Jacobian.	6M	CO4	L3
(b)	Explain the steps involved in the formulation of Lagrange-Euler dynamic model.	6M	CO4	L3
(OR)				
8(a)	Explain Newton –Euler formulation. Write its applications.	6M	CO4	L1
(b)	Differentiate between Lagrange Euler and Newton Euler Formulation.	6M	CO4	L1
9(a)	Define Trajectory planning. Discuss the steps involved in trajectory planning.	6M	CO5	L1
(b)	Differentiate point to point motion and continuous path motion.	6M	CO5	L2
(OR)				
10(a)	Describe joint space trajectory in Robotics.	6M	CO5	L3
(b)	Explain with neat sketch about Trajectory planning and avoidance of obstacles and path planning.	6M	CO5	L2

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B.Tech. (VII Semester) Supplementary Examinations

17CE30-DESIGN OF REINFORCED CONCRETE STRUCTURES-II

(CE)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1.	Design an RC square footing for a column of size 400 x 400mm subjected an axial load of 1800kN. The safe bearing capacity of soil is 200kN/m ² . Use M25 concrete and F415 steel.	12M	CO1	L4
(OR)				
2.	A reinforced concrete column of size 300mm x 300mm carries a load of 750kN. The safe bearing capacity of soil is 200kN/m ² . Design an isolated column footing with uniform thickness. Use M20 grade concrete and Fe415 steel.	12M	CO1	L4
3.	A R.C. column 400mm x 400mm carrying a load of 650kN is supported on three piles 400mm x 400mm in section. The center-to-center distance between the piles is 1.5m. Design a suitable pile cap. Use M20 concrete and Fe415 steel.	12M	CO2	L4
(OR)				
4.	Design a pile under a column transmitting an axial load of 800kN. The pile is driven to a hard stratum available at a depth of 8m. Use M20 grade concrete and Fe415 steel.	12M	CO2	L4
5.	Design the interior panel of a flat slab 5.6 m x 6.6 m in size, for a super-imposed load of 4 kN/m ² . Provide two-way reinforcement. Use M 20 concrete and Fe 415 steel.	12M	CO3	L4
(OR)				
6.	Design a grid slab of size 8 m X 12 m. The spacing of the ribs in mutually perpendicular directions is 1.5 m c/c. Use M20 and Fe 415 grades.	12M	CO3	L4
7.	A staircase in a public building supported on wall on one side and stringer beam on other side. The risers are 150 mm and treads are 250 mm and the horizontal span of the stairs may be taken as 1.5 m. Design the steps by taking single flight. Use M 25 concrete and Fe 415 steel.	12M	CO4	L3
(OR)				
8.	Design a dog legged staircase for an office building in a room measuring 2.8m x 5.8m clear. Vertical distance between the floors is 3.6 m. Width of flight is to be 1.25 m. Live load is 3 kN/m ² . The stairs are supported on 230 mm walls at the end of outer edges of landing slab.	12M	CO4	L3
9.	Design a doglegged staircase for a building in which the height of the floor is 3.3. The stair hall is 2.5m x 4.5m. Adopt rise and tread of each step as 150mm and 225mm respectively. Live load may be taken as 3kN/m ² . Use M20 grade concrete and Fe415 steel. Assume the stairs are supported on 230mm walls at the ends of outer edges of landing slabs.	12M	CO5	L4
(OR)				
10.	Design heel slab and toe slab for the cantilever type retaining wall to retain the earth of 5 m height. Take angle of internal friction 30°, unit weight of soil is 18kN/m ³ and safe bearing capacity of soil is 200kN/m ² . Use M20 and Fe 415 grades. Draw the reinforcement details.	12M	CO5	L3

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

17EE23-SOLID STATE DRIVES

(EEE)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Describe the operation of separately excited DC motor fed by a three-phase half converter.	6M	CO2	L2
(b)	Discuss the effects of armature current ripple on the performance of DC motor.	6M	CO1	L2
(OR)				
2(a)	Describe the operation of 1-phase full converter fed DC series motor. Assume continuous conduction and draw relevant waveforms.	6M	CO1	L2
(b)	List the drawbacks of rectifier fed dc drives.	6M	CO2	L1
3(a)	Draw and explain the diagram of regenerative chopper fed separately excited DC motor drive.	6M	CO2	L2
(b)	A 200V, 100A DC series motor runs at 1000rpm is operated under dynamic braking at twice the rated torque and 800rpm. The resistance of armature and field winding is 0.1 ohm. Calculate the value of braking current and resistance.	6M	CO2	L3
(OR)				
4(a)	Describe the relative merits and demerits of the following types of braking for DC motors: mechanical braking, dynamic braking and regenerative braking with neat diagram.	6M	CO1	L2
(b)	Illustrate the principle of speed control of a DC motor and show how it can be achieved by a chopper.	6M	CO2	L2
5(a)	Discuss the operation of induction motor control using current source inverter.	6M	CO2	L2
(b)	Explain in detail the speed control scheme for a three phase induction motor using PWM inverter.	6M	CO2	L3
(OR)				
6(a)	Draw and explain the torque speed characteristics of induction motor through stator voltage control.	6M	CO3	L2
(b)	Draw and explain the operation of voltage source inverter fed three phase induction motor.	6M	CO3	L2
7(a)	In which way a static Kramer Control is different from static Scherbius drive discuss in detail.	6M	CO3	L2
(b)	Describe about the static Kramer drive with neat sketch. Why it has a low range of speed control?	6M	CO3	L2
(OR)				
8(a)	Draw and explain the operation of a static Kramer drive.	6M	CO3	L2
(b)	Discuss the static rotor resistance control of induction motor.	6M	CO3	L2
9(a)	Describe the operation of a load commutated CSI fed synchronous motor.	6M	CO3	L2
(b)	In variable frequency control of a synchronous motor, why (V/F) ratio is maintained constant upto base speed and V constant above the base speed.	6M	CO3	L2
(OR)				
10(a)	Draw and explain the block diagram of a closed loop synchronous motor drive fed from VSI.	6M	CO3	L3
(b)	Compare VSI and CSI fed synchronous motor drives.	6M	CO3	L2

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

17EE26-ADVANCED CONTROL SYSTEMS

(EEE)

Time : 3 hours

Max.Marks :60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Consider the system described by the state model $\dot{x} = Ax$ and $y = Cx$ where $A = \begin{bmatrix} -1 & 1 \\ 1 & -2 \end{bmatrix}$ $C = [1 \ 0]$ compute the observability of the system	6M	CO1	L2
(b)	Test the controllability for the following system. $A = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & -2 & -3 \end{bmatrix}$ $B = \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix}$ $C = [1 \ 0 \ 0]$	6M	CO1	L3
(OR)				
2(a)	State and Prove the Properties of state Transition Matrices.	6M	CO1	L2
(b)	Consider the system described by the state model $\dot{x} = Ax$ and $y = Cx$ where $A = \begin{bmatrix} -4 & 1 \\ -2 & -2 \end{bmatrix}$ $C = [1 \ 0]$ Design a full order state observer. The desired eigen values for the observer matrix are $\mu_1 = -4$ and $\mu_2 = -6$.	6M	CO2	L3
3.	Draw the phase trajectory using method of isoclines for a linear second order servo described by the equation, $\ddot{e} + 2\tau\omega_n\dot{e} + \omega_n^2e = 0$ Where $\tau = 0.15$; $\omega_n = 1 \text{ rad/sec}$; $e(0) = 1.5$ and $\dot{e}(0) = 0$	12M	CO2	L3
(OR)				
4(a)	Discuss the properties of Nonlinear Systems.	6M	CO2	L2
(b)	What is a singular point? Draw the phase trajectory of the following singular points: (i) Stable node (ii) Unstable node (iii) Saddle point (iv) Vortex point.	6M	CO2	L2
5(a)	Determine the describing function of Saturation nonlinearity.	6M	CO3	L2
(b)	Derive the Describing of Relay with DeadZone/Practical Relay.	6M	CO3	L2
(OR)				
6.	Discuss the stability of Non-linear Systems using Describing Function.	12M	CO3	L3
7(a)	Discuss the following Lyapunov's Stability Criteria (i) Asymptotic Stability (ii) Asymptotic stability in the large.	6M	CO3	L2
(b)	Consider the system described by the state equation $\dot{x}_1 = x_2, \dot{x}_2 = -3x_2 - x_1$ Determine the Stability of this system.	6M	CO3	L3
(OR)				
8(a)	Identify the Definiteness of the following system represented in Quadratic form $V(x) = 10x_1^2 + 4x_2^2 + x_3^2 + 2x_1x_2 - 2x_2x_3 - 4x_3x_1$	6M	CO3	L2
(b)	Determine the Stability of a non-linear system governed by the equation $\dot{x}_1 = -2x_1 + 2x_1^2x_2, \dot{x}_2 = -3x_2$	6M	CO3	L3
9(a)	State and explain the principle of optimality.	6M	CO4	L2
(b)	With the help of block diagram, explain Linear Quadratic Gaussian Control.	6M	CO4	L2
(OR)				
10(a)	Analyze the formulation of the optimal control problem.	6M	CO4	L2
(b)	State and analyze the Minimum Energy Problem.	6M	CO4	L2

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30 OCT 2025

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

**17CS80-JAVA PROGRAMMING
(EEE)**

Time : 3 hours

Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Develop a Java Program to find multiplication of two matrices.	6M	CO1	L3
(b)	Describe about various operators in Java.	6M	CO1	L1
(OR)				
2(a)	Differentiate between POP and OOP environments.	6M	CO1	L2
(b)	Define an array. Write its creation, accessing and displaying of array elements with example.	6M	CO1	L1
(OR)				
3(a)	Is java supports multiple inheritance. Justify your answer with example.	6M	CO2	L1
(b)	Illustrate the purpose of super keyword. Explain with examples.	6M	CO2	L4
(OR)				
4(a)	In what way String Tokenizer class is useful. Explain with example.	6M	CO2	L2
(b)	Discuss the purpose of final keyword with example.	6M	CO2	L3
(OR)				
5.	Describe about various states of Thread Life Cycle with neat sketch.	12M	CO3	L2
(OR)				
6(a)	State and explain the exception handling mechanism in Java.	6M	CO3	L2
(b)	Explain about thread synchronization and dead lock of threads.	6M	CO3	L2
(OR)				
7(a)	What is an applet? Explain the life cycle of Applet with a neat sketch.	6M	CO4	L2
(b)	List the event classes and Listener Interfaces.	6M	CO4	L2
(OR)				
8(a)	Write the step wise procedure to create and run an applet.	6M	CO4	L2
(b)	What is an event? Explain the methods that are available to handle events in Java.	6M	CO4	L2
(OR)				
9(a)	List the key features of Swing components.	6M	CO5	L1
(b)	State and explain about JComboBox with suitable example.	6M	CO5	L2
(OR)				
10(a)	Demonstrate JTable with example.	6M	CO5	L3
(b)	Explain about AWT components hierarchy.	6M	CO5	L2

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B.Tech. (VII Semester) Regular/Supplementary Examinations
17EE92-HIGH VOLTAGE ENGINEERING
(EEE)

800000
31/10/25

Time : 3 hours

Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Interpret the Ionization process with a neat sketch.	6M	CO1	L1
(b)	Illustrate the procedure associated with charge simulation method also mention its advantages and limitations.	6M	CO1	L2
(OR)				
2(a)	Define Paschen's law and deduce the condition for Paschen's law.	6M	CO1	L3
(b)	Give the origin and characteristics of switching surges and explain the causes of over voltage due to switching surges in HVE system.	6M	CO1	L2
3.	Explain Thermal break down in solid dielectrics. Derive an expression for critical thermal breakdown voltage (V_c) and critical electric field (E_c) for the same. State clearly the assumption made.	12M	CO1	L3
(OR)				
4(a)	Discuss the factors considered for breakdown phenomenon in solid dielectrics.	6M	CO1	L1
(b)	Interpret the breakdown phenomenon under suspended particle theory in liquid dielectrics.	6M	CO1	L2
5(a)	Define the front and tail times of an impulse wave. What are the tolerances allowed as per the specifications?	6M	CO2	L2
(b)	Enumerate the different electrical tests conducts on High voltage Cables.	6M	CO2	L2
(OR)				
6(a)	Explain the cascade connection of transformers for producing very high a.c. voltages with a neat sketch.	6M	CO3	L2
(b)	Determine the ripple voltage and regulation of a 10 stage Cockroft-walton type dc voltage multiplier circuit having a stage capacitance of 0.001 μ F, supply voltage of 100 KV at a frequency of 400 Hz and a load current is 100 mA.	6M	CO3	L3
7(a)	Explain the measurement of high d.c. voltages using series resistance microammeter with a schematic diagram.	6M	CO3	L2
(b)	Illustrate the different types of resistive shunts used for impulse current measurements.	6M	CO3	L2
(OR)				
8(a)	Demonstrate the principle and construction of an electrostatic voltmeter for very high voltages.	6M	CO3	L2
(b)	Compare the relative advantages and disadvantages of using a series resistance microammeter and a potential divider with an electrostatic voltmeter for measuring high d.c. voltages.	6M	CO3	L2
9(a)	Explain with a neat sketch the principles and functioning of Surge arrester.	6M	CO4	L2
(b)	Interpret the Volt-time characteristics of transformer rod gap protecting device with neat sketch.	6M	CO4	L2
(OR)				
10(a)	Illustrate the principle of Insulation Coordination on High voltage system.	6M	CO4	L2
(b)	Discuss the different types of grounding methods used in electrical grounding.	6M	CO4	L1