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. (V Semester) (R17) Semester End Examinations (Supplementary) - November 2025

(2018, 2019 Regular admitted batches and 2020 Lateral Entry admitted batch only)

R17

TIME TABLE

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

Branch	03-11-2025 (Monday)	04-11-2025 (Tuesday)	05-11-2025 (Wednesday)	06-11-2025 (Thursday)	07-11-2025 (Friday)	10-11-2025 (Monday)	11-11-2025 (Tuesday) Add on course - I
ASE	17HS01 - Engineering Economics and Accountancy	17AE09 - Elements of Heat Transfer	17AE10 - Aerodynamics-II	17AE11 - Propulsion – I	17AE12 - Aircraft Systems and Instruments	PE-I 17ME22 - CAD/CAM 17AE13 - Theory of Machines	17AE90 - Aerospace Materials
CE	17HS01 - Engineering Economics and Accountancy	17CE12 - Structural Analysis – II	17CE13 - Design of Reinforced Concrete Structures – I	17CE14- Highway Engineering	17CE15 - Hydrology	PE-I 17CE18 - Construction Management	17CE90 - Green Buildings
CSE	17HS01 - Engineering Economics and Accountancy	17CS03 - UML and Design Patterns	17CI14 - Web Technologies	17CI15 - Automata Theory and Compiler Design	17CS04 - Operating Systems	PE-I 17CI12 - Human Computer Interaction 17CI13-Advanced Database Management Systems	17CS90 - Advanced Graph Algorithms
ECE	17HS01 - Engineering Economics and Accountancy	17EC13 - Computer Organization and Architecture	17EC14 - Transmission Lines and Wave Guides	17EC15 - Digital Communications	17EC16 - VLSI Design	PE-I 17EI18 - Micro Electro Mechanical Systems	17EC90 - Electronic Measurements and Instrumentation
EEE	17HS01 - Engineering Economics and Accountancy	17EE10 - Linear and Digital Integrated Circuits	17EC22 - Microprocessors and Microcontrollers	17EE11 - Electrical Machines – II	17EE12 - Electrical Power Transmission	PE-I 17EE14- Renewable Energy Technologies 17EE15 - Electrical Engineering Materials	17EE90 - Electrical Safety
EIE	17HS01 - Engineering Economics and Accountancy	17EI05 - Communication Systems	17EC22 - Microprocessors and Microcontrollers	17EI06 - Integrated Circuits and Applications	PE-I 17EI09 - Intelligent Instrumentation 17EC16 - VLSI Design	17EI07 - Control Systems Engineering	17EI90 - Safety Instrumentation
IT	17HS01 - Engineering Economics and Accountancy	17CI17 - Data Communications and Computer Networks	17EC22 - Microprocessors and Microcontrollers	17CI08 - Design and Analysis of Algorithms	17CI10 - Software Engineering	PE-I 17CI23 - Artificial Intelligence	17IT90 - Real Time Operating Systems
ME	17ME11 - Industrial Management	17ME12 -IC Engines and Gas Turbines	17ME13 - Mechanical Engineering Design - I	17ME14 - Dynamics of Machines	17ME15 - Metal Cutting and Machine Tools	PE-I 17ME16 - Non-Conventional Energy Sources 17ME17 - Mechanical Vibrations	17ME90 - Energy, Environment and Pollution

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

Date: 17-10-2025

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 | | | | | | | | | | |

04 NOV 2025

R17

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

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

B.Tech. (V Semester) Supplementary Examinations

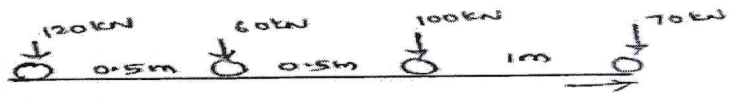
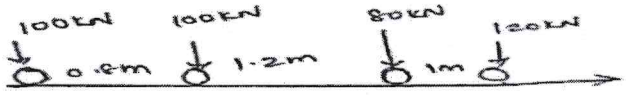
Bcccel 04/11/25

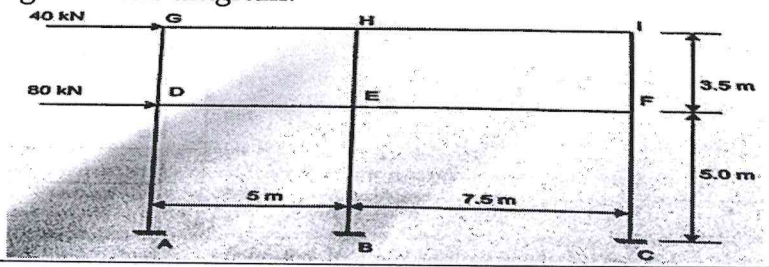
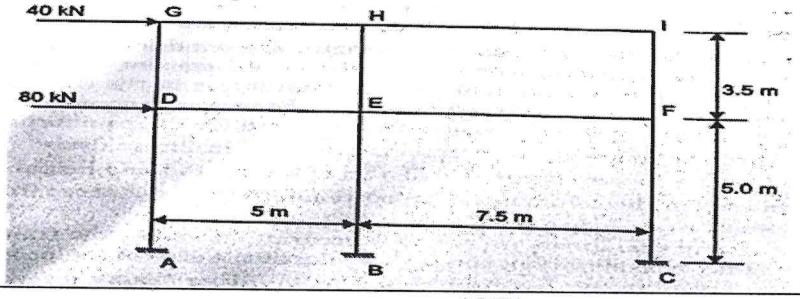
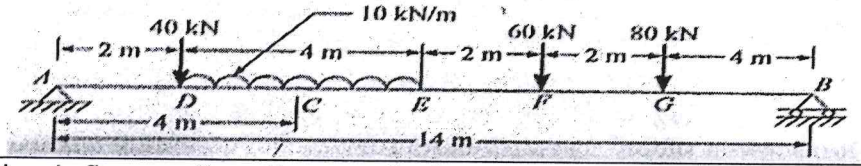
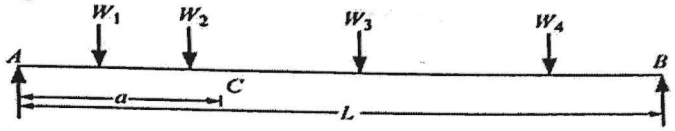
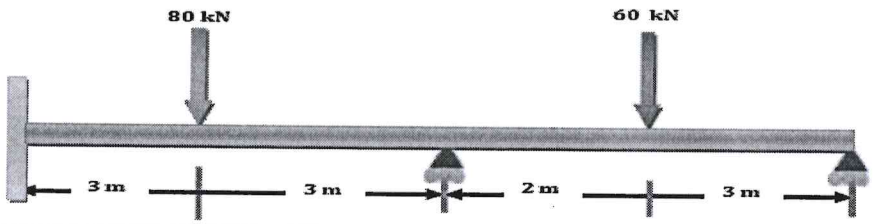
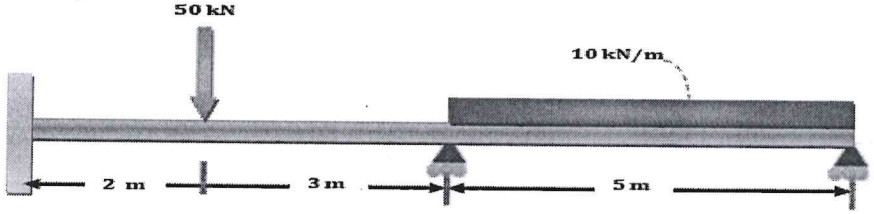
17CE12-STRUCTURAL ANALYSIS II

(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.	A three hinged parabolic arch of span 24m and a central rise of 6m is subjected to two concreted loads of 50kN and 25kN at a distance of 6m and 10m from the right hinge and a uniformly distributed load of 100 kN/m on the left half of the span. Summarize the horizontal thrust, bending moment and the radial shear at a section 8m from the left support.	12M	CO1	L2
	(OR)			
2.	A two hinged parabolic arch has 45m span and 8m central rise. The arch is subjected to a UDL load of intensity 50kN/m over the left half of the span.The second moment of inertia of the rib varies as the secant of the slope of the rib axis. Summarize the horizontal thrust, bending moment and the radial shear at a section 15m from the right support.	12M	CO1	L2
3(a)	Describe the analysis of a cable subjected to UDL.	6M	CO2	L2
(b)	A light cable of length 20 m is supported at two ends at the same level. The supports are at 16 m apart. The cable supports three loads of 10, 12 1nd 16 KN dividing the 16 m distance in four equal parts. Find the shape of the string and tension in various portions.	6M	CO2	L4
	(OR)			
4.	A three hinged stiffening girder of a suspension bridge of 100m is subjected to two point loads of 200kN and 300kN at a distance of 30m from the left end. The supporting cable has a central dip of 10m. Determine the Sher force and bending Moment for the girder at a distance of 30m from the left end.	12M	CO2	L3
5(a)	Derive the influence line bending profiles for the uniformly distributed load of longer than the span.	6M	CO3	L5
(b)	What is meant by absolute maximum bending moment in a beam and maximum shear force diagram?	6M	CO3	L5
	(OR)			
6(a)	The loading system as shown, moves from left to right on the girder of span 10 metres. Find the absolute maximum bending moment for the girder. 	6M	CO3	L5
(b)	The load system as shown, moves from left to right on a girder of span 10 metres. Find the maximum bending moment which can occur under the 80kN load. 	6M	CO3	L5

7(a)	Using the portal method, analyse the building frame subjected to horizontal forces (due to wind)as shown in figure. Sketch the bending moment diagram. 	6M	CO4	L3
(b)	Using the cantilever method, analyse the building frame subjected to horizontal forces as shown in figure. Sketch the bending moment diagrams. 	6M	CO4	L3
	(OR)			
8(a)	Using influence line diagrams determine the shear force and bending moment at section C in simply supported beam shown in figure. 	6M	CO4	L3
(b)	Using influence line diagram find out maximum shear force and maximum bending values at section for any given loading. As shown in figure. 	6M	CO4	L3
9.	Summarize the SFD & BMD for the beam shown in figure by Stiffness method. 	12M	CO5	L2
	(OR)			
10.	Summarize the SFD & BMD for the beam shown in figure by Flexibility method. 	12M	CO5	L2

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05 NOV 2025

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

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

B.Tech. (V Semester) Supplementary Examinations

17EC14-TRANSMISSION LINES AND WAVE GUIDES

(ECE)

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)	Summarize about, loading, its need in Transmission line and why only inductive loading is preferred.	6M	CO1	L2
(b)	A Transmission line operating at 500MHz has Z0=80 Ω, α= 0.04 Np/m, β=1.5 rad/m. Examine the line parameters R,L,G and C.	6M	CO1	L3
	(OR)			
2(a)	Illustrate about primary and secondary constants of transmission line with help of circuit equivalent representation.	6M	CO1	L1
(b)	Show that transmission line will be distortion free if CR=LG.	6M	CO1	L2
3(a)	Interpret how Smith chart is useful in solving transmission line problems compared with analytical approach.	6M	CO1	L2
(b)	Infer the relation between reflection coefficient and VSWR.	6M	CO1	L4
	(OR)			
4(a)	Discuss the variation of input impedance with electrical length of transmission line for open circuited load.	6M	CO1	L2
(b)	A load of 100 Ω is connected to a 75 Ω lossless line with electrical length of 45^0. Using the analytical approach predict (i) Reflection coefficient (ii) VSWR (iii) Z_{in}.	6M	CO1	L3
5(a)	Derive field expressions of TE and TM waves in rectangular wave guides.	6M	CO3	L3
(b)	Describe Cutoff wavelength, phase velocity, group velocity, guided wave length for rectangular waveguide.	6M	CO3	L2
	(OR)			
6(a)	Evaluate the field expressions for TM_{mn} mode in a Rectangular waveguide.	6M	CO3	L5
(b)	Outline the properties of TEM wave in a parallel plane wave guide.	6M	CO2	L4
7(a)	Explain solution of field equations in cylindrical co-ordinates.	6M	CO4	L2
(b)	Derive field expressions of a rectangular cavity generator.	6M	CO4	L3
	(OR)			
8(a)	Explain Dominant mode and excitation mode in circular wave guides.	6M	CO4	L2
(b)	Interpret Q factor of a rectangular cavity generator.	6M	CO4	L4
9(a)	Outline the procedure to calculate Q of cylindrical cavity assuming lossy conducting walls and lossless dielectric.	6M	CO2	L4
(b)	Infer the field expression for TE_{nmp} mode in a circular cavity resonator.	6M	CO2	L4
	(OR)			
10(a)	Examine the Q factor of microstrip line with respect to loss tangent and frequency.	6M	CO3	L2
(b)	A microstrip line has the following parameters: εr=5.23, h=7mm, t=2.8mm, w=10mm. Determine the characteristic impedance Z_0 of microstrip line.	6M	CO4	L3

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B.Tech. (V Semester) Supplementary Examinations

17EC22-MICROPROCESSORS AND MICROCONTROLLERS

(EEE,EIE&IT)

Time : 3 hours | Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	List out the techniques used to pass the parameters to procedures.	4M	CO1	L2
(b)	The register contents of 8086 are given below. CS=4000H, DS=7000H, SS=A000H, ES=B000H, SI=2000H, DI=3000H, BP=1002H, SP=0002H, AX=0000H, BX=5200H, CX=2000H, DX=2000H Calculate the effective address and physical address of the following instructions. (i) MUL [BX] (ii) AND AH, [SI+42D] (iii) XOR DH, [DI+8D] (iv) DIV [SI]	8M	CO2	L3
	(OR)			
2(a)	List the special functions of the general purpose registers of 8086.	4M	CO1	L2
(b)	Develop an assembler language program to find no. of Positive and Negative numbers from a given series of signed numbers.	8M	CO2	L3
3(a)	Show the memory mapping table for interfacing 2K×8 RAM with 8086.	4M	CO4	L3
(b)	Discuss the use of the following assembler directives: (i) PROC (ii) GLOBAL (iii) SEGMENT (iv) DB	8M	CO1	L2
	(OR)			
4(a)	Interpret the steps involved, if an interrupt is initiated in 8086 Microprocessor.	4M	CO1	L2
(b)	Discuss the use of the following assembler directives. (i) EVEN (ii) ENDS (iii) ASSUME (iv) EQU	8M	CO1	L2
5(a)	What are the contents of CWR of 8255 when port A is used as O/P port and port B as I/P port when both Port A and B are operating in mode0?	4M	CO3	L3
(b)	Interface DAC 0800with an 8086 processor and develop a assembler language program to generate square wave of frequency 1K Hz. Assume that 8086 processor operates at 10 MHz frequency.	8M	CO4	L3
	(OR)			
6(a)	Interpret the role of Transmitter section of 8251.	4M	CO3	L2
(b)	Develop an ALP to transmit 100 bytes of data string starting at location 2000: 5000 using 8251 in asynchronous mode with even parity enabled, 2-stop bits, 8-bit character length, frequency 160K Hz and baud rate 10K.	8M	CO3	L3
7(a)	Illustrate the following Instructions: (i) DJNZ (ii) MOVC	4M	CO2	L2
(b)	Discuss the internal RAM organization of the 8051.	8M	CO1	L2
	(OR)			
8(a)	Illustrate the following Instructions: (i) MOV (ii) SWAP	4M	CO2	L2
(b)	Develop a program by using 8051 instructions to divide an 8-bit number present at memory location 8000H with number present at address 8001H and store the quotient at the memory location 8020 and remainder at memory address 8021H.	8M	CO2	L3
9.	Discuss the Timer 0 and Timer 1 modes of operation.	12M	CO1	L2
	(OR)			
10.	Discuss about different modes of serial port in 8051.	12M	CO1	L2

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B.Tech. (V Semester) Supplementary Examinations

6/11/25

17EE11-ELECTRICAL MACHINES-II

(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)	Discuss the points of similarities between a transformer and an induction motor. Hence, explain why an induction machine is called a generalized transformer?	6M	CO1	L2
(b)	Explain the phenomena of cogging and crawling in three phase induction motor.	6M	CO1	L2
	(OR)			
2(a)	List the difference between squirrel cage rotor and slip ring rotor.	6M	CO1	L1
(b)	A 1000 V, 50 HZ, 3-phase induction motor has star connected stator. The ratio of stator to rotor is 3.6 the standstill impedance of rotor per phase is 0.01+j 0.2 ohm calculate (i) Rotor current at start (ii) Rotor P.F at start (iii) Rotor current at slip of 3% (iv) external resistance per phase the rotor circuit to limit starting rotor current to 200A.	6M	CO2	L3
3.	Explain how the circle diagram for a poly-phase induction motor can be drawn from its test data.	12M	CO2	L2
	(OR)			
4(a)	Explain the torque slip characteristic of 3-phase induction motor.	6M	CO2	L2
(b)	What is induction generator? Discuss the principle of operation of induction generator.	6M	CO2	L2
5(a)	Describe the operation of single phase induction motor using double field revolving theory.	6M	CO3	L2
(b)	What are different types of single phase induction motors and what are their applications?	6M	CO3	L2
	(OR)			
6(a)	Describe the construction and working of shaded pole motor with the help of a neat diagram.	6M	CO3	L2
(b)	Explain the constructional details and principle of operation of a split phase induction motor. List out its industrial applications.	6M	CO3	
7(a)	By taking necessary assumptions, derive EMF equation of a synchronous generator.	6M	CO2	L3
(b)	A 3-phase, 16-pole alternator has the following data: Number of slots=192; conductors/slot=8; coil span=160 electrical degrees; speed of the alternator=375 rpm; flux/pole=55 mWb; Calculate the phase and line voltages.	6M	CO2	L3
	(OR)			
8(a)	Explain how the potier triangle can be drawn with the help of OCC and any two points on the ZPFC. What are the observations we can derive from the potier triangle?	6M	CO2	L3
(b)	Describe a method of synchronizing the three phase alternator to the infinite bus giving the relevant circuit diagram.	6M	CO2	
9(a)	Derive the equation for power developed in a synchronous motor.	6M	CO2	L2
(b)	Show that a Synchronous motor has no net starting torque. Explain different methods of starting synchronous motor.	6M	CO2	L2
	(OR)			
10(a)	Explain the significance of V curves and inverted V-curves.	6M	CO4	L2
(b)	A 1000 kVA, 11,000 V, 3-Phase star connected synchronous motor has an armature resistance and reactance per phase of 3 Ω and 40 Ω respectively. Determine the induced emf and angular retardation of the motor when fully loaded at (i) unity pf and (ii) 0.9 pf lead.	6M	CO4	L3

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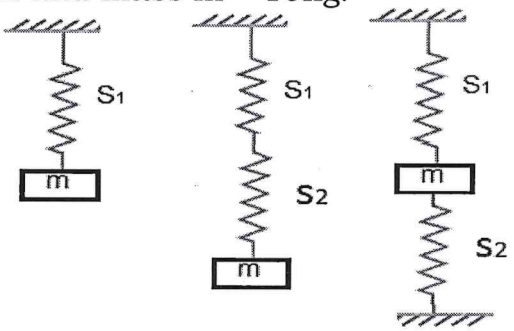
B.Tech. (V Semester) Supplementary Examinations

17ME14-DYNAMICS OF MACHINES
(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)	Mention the purpose of a clutch and illustrate working of single plate clutch.	6M	CO1	L2
(b)	Derive the expression for the ratio of the maximum and minimum tensions in the brake straps of band and block brake.	6M	CO1	L3
	(OR)			
2(a)	Classify various types of brakes with illustrations.	6M	CO1	L2
(b)	Derive the expression for breaking torque developed in single plate clutch using uniform wear condition.	6M	CO1	L3
3(a)	Define energy stored in cycle and write the equation for energy stored in cycle.	6M	CO2	L2
(b)	A horizontal cross compound steam engine develops 300 k W at 90 rpm. The coefficient of fluctuation of energy as found from the turning moment diagram is to be 0.1 and the fluctuation of speed is to be kept within ± 0.5% of the mean speed. Find the weight of the flywheel required, if the radius of gyration is 2 meters.	6M	CO2	L3
	(OR)			
4(a)	Draw & illustrate the turning moment diagram of a multi cylinder engine.	6M	CO2	L2
(b)	Define the following (i)Maximum fluctuation of speed (ii)Coefficient of fluctuation of speed	6M	CO2	L2
5(a)	Discuss the construction and working of Hartnell governor.	6M	CO3	L2
(b)	All the arms of a Porter governor are 178 mm long and are hinged at a distance of 38 mm from the axis of rotation. The mass of each ball is 1.15 kg and mass of the sleeve is 20 kg. The governor sleeve begins to rise at 280 rpm when the links are at an angle of 30° to the vertical. Assuming the friction force to be constant, determine the minimum and maximum speed of rotation when the inclination of the arms to the vertical is 45°	6M	CO3	L3
	(OR)			
6(a)	Define the terms height of the governor and equilibrium speed of governor.	6M	CO3	L1
(b)	The length of the upper arm of a Watt governor is 400 mm and its inclination to the vertical is 30°. Find the percentage increase in speed, if the balls rise by 20 mm.	6M	CO3	L3

7(a)	Discuss how several masses rotating in different planes of shaft are balanced.	6M	CO4	L2
(b)	Deduce the expression for unbalanced force due to partial balancing of reciprocating engines.	6M	CO4	L3
	(OR)			
8.	A shaft carries five masses A, B, C, D and E which revolve at the same radius in planes which are equidistant from one another. The magnitude of the masses in planes A, C and D are 50 kg, 40 kg and 80 kg respectively. The angle between A and C is 90° and that between C and D is 135°. Determine the magnitude of the masses in planes B and E and their positions to put the shaft in complete rotating balance.	12M	CO4	L3
9.	Determine the equivalent spring stiffness and the natural frequency of the following vibrating systems when (i)the mass is suspended to a spring one (ii)the mass is suspended at the bottom of two springs in series and (iii)the mass is fixed in between two springs, By assuming S1 = 5 N/mm, S2 = 8 N/mm and mass m = 10kg. 	12M	CO5	L3
	(OR)			
10(a)	Discuss the Effect of Inertia of the constraint in Longitudinal Vibrations.	6M	CO5	L2
(b)	Calculate the whirling speed of a shaft 20 mm diameter and 0.6 m long carrying a mass of 1 kg at its mid-point. The density of the shaft material is 40 Mg/m^3, and Young's modulus is 200 GN/m^2. Assume the shaft to be freely supported.	6M	CO5	L3

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B.Tech. (V Semester) Supplementary Examinations

17CE15-HYDROLOGY
(CE)

Time : 3 hours | Max. Marks : 60

Answer one question from each unit
All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Describe how infiltration capacity rate can be measured using double ring infiltrometre.	6M	CO1	L1
(b)	List out the relative merits and demerits of sunken and floating pans.	6M	CO1	L1
	(OR)			
2(a)	Illustrate the principle of working of tipping bucket type recording raingauge.	6M	CO1	L2
(b)	The analysis of a storm yielded the following information regarding isohyets. Calculate the average depth of rainfall.	6M	CO1	L3

Isohyet interval in mm	70-80	80-90	90-100	100-110	110-120	120-130
Area in km^2	10	85	113	98	136	67

3(a)	Explain how runoff is estimated using Khosla's method.	6M	CO2	L2
(b)	Describe the catchment characteristics.	6M	CO2	L1
	(OR)			
4(a)	Describe the various climate factors affecting runoff.	6M	CO2	L1
(b)	A small watershed near Nagpur is 150 ha in size and has group C soil. The land cover can be classified as 40 % open forest (CN = 60) and 60% poor quality pasture (CN=86). Assuming AMC at average condition and the soil to be black soil, estimate the direct runoff volume due to a rainfall of 75 mm in one day. Use SCS-CN equation applicable to Indian Conditions.	6M	CO2	L3
5(a)	Describe the factors affecting a flood hydrograph.	6M	CO3	L1
(b)	Describe the step-by-step procedure of the derivation of a unit hydrograph from an isolated storm.	6M	CO3	L1
	(OR)			
6(a)	Describe the construction of S-curve hydrograph.	6M	CO3	L2
(b)	What do you understand by synthetic unit hydrograph? Explain how it is derived.	6M	CO3	L2
7(a)	Define the following terms (i) Hydraulic routing (ii) Hydrologic routing (iii) Channel routing (iv) Reservoir routing	6M	CO4	L1

(b)	Describe the method of estimating a Tr - year flood using Log-Pearson type III distribution.	6M	CO4	L1
	(OR)			
8(a)	Describe the various non-structural measures of flood management.	6M	CO4	L1
(b)	The annual flood peak of a river is estimated to have 50 years and 100 years floods of 660 m^3/s and 740 m^3/s respectively. Estimate the flood magnitude in this river with a return period of 200 years.	6M	CO4	L3
9(a)	Define the following terms. (i) Specific yield (ii) Specific Retention (iii) Storage coefficient.	6M	CO5	L1
(b)	A well with a radius of 0.5 m penetrates completely a confined aquifer of thickness 40 m and permibility 30 m/day. The well is pumped so that the water level in the well remains at 7.5 m below the original piezometric surface. Assuming that the radius of influence is 500 m. (i) compute the steady state discharge from the well. (ii) Determine the percentage decrease in drawdown for the same discharge if the well diameter is doubled. Assume the radius of influence to be same in all the cases.	6M	CO5	L3
	(OR)			
10(a)	In a recuperation test on an open well, the water level was depressed by 4 m and it was observed to rise by 2.5 m in 90 minutes. Determine the specific capacity of the well. Determine the yield from the well under a working head of 3 m, if the diameter of the well is 7.5 m. Determine the percentage increase in discharge for the same working head if the well diameter is 10 m.	6M	CO5	L3
(b)	Derive an expression for the steady state discharge of well fully penetrating an unconfined aquifer.	6M	CO5	L2

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

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

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

17EE12-ELECTRICAL POWER TRANSMISSION

(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)	Show an expression for inductance of a transmission line per km per conductor.	6M	CO1	L1
(b)	Demonstrate skin effect.	6M	CO1	L2
	(OR)			
2(a)	Derive an expression for the capacitance of 1-phase 2-wire line.	6M	CO1	L2
(b)	Calculate the loop inductance of a 1- phase line with two paralle conductors spaced 3.5m apart. The diameter of each conductor i 1.5cm, also calculate the reactance of the transmission line i frequency is 50Hz.	6M	CO1	L3
3(a)	Explain the Ferranti effect of long transmission line with neat sketch.	6M	CO1	L2
(b)	Analyze a medium transmission line nominal T method and draw the phasor diagram.	6M	CO1	L4
	(OR)			
4(a)	Evaluate the performance equations of medium lines using nominal-Π method.	6M	CO1	L2
(b)	Derive the equations of wavelength and velocity of propagation of wave.	6M	CO1	L2
5(a)	Determine the electrostatic stresses in a single core cable.	6M	CO2	L3
(b)	Explain the grading of cables.	6M	CO2	L2
	(OR)			
6(a)	Discuss the effect of both wind and ice on sag calculation.	6M	CO3	L2
(b)	What is the most general criterion for the classification of cables? Draw the sketch of a single core low tension cable and label the various parts.	6M	CO3	L1
7(a)	Discuss the critical voltages during the corona effect.	6M	CO4	L2
(b)	A 3-phase line has conductors 2 cm in diameter spaced equilaterally 1m apart. If the dielectric strength of air is 30 kV (max) per cm, find the disruptive critical voltage for the line. Take air density factor $\delta = 0{\cdot}952$ and irregularity factor $m_0 = 0{\cdot}9$.	6M	CO4	L3
	(OR)			
8(a)	Describe the arrangement of (i) Pin-type (ii) Suspension type insulators.	6M	CO4	L2
(b)	In a 33 kV overhead line, there are three units in the string of insulators. If the capacitance between each insulator pin and earth is 11% of self-capacitance of each insulator, find (i) the distribution of voltage over 3 insulators and (ii) string efficiency.	6M	CO4	L3
9(a)	What is a Bewley-Lattice diagram? Explain its utility in the study of travelling waves.	6M	CO5	L2
(b)	What are the advantages and disadvantages of per-unit system?	6M	CO5	L1
	(OR)			
10(a)	Explain variation in voltage and current transients in a line terminated with a short circuit.	6M	CO5	L2
(b)	Draw the Bewley lattice diagram for an open circuited line.	6M	CO5	L1

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

10/11/25

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

17EE14-RENEWABLE ENERGY TECHNOLOGIES
(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)	List out various renewable energy resources and discuss them briefly.	6M	CO1	L1
(b)	Describe the classification of solar energy collectors.	6M	CO2	L1
	(OR)			
2(a)	Explain about the features of different types of horizontal-axis and vertical-axis wind turbines.	6M	CO1	L2
(b)	Derive the expression of total power extracted from a wind turbine. Draw and explain power versus wind speed characteristics of a wind turbine.	6M	CO1	L3
3(a)	Illustrate with a neat sketch and discuss Calculation of Heat Transfer for two Reservoirs.	6M	CO3	L2
(b)	What are the applications of solar ponds? Discuss them.	6M	CO2	L1
	(OR)			
4(a)	What are the main parts in solar water heating system? Explain.	6M	CO1	L1
(b)	What type of solar water heater is most economic for giving extra heat to a swimming pool?	6M	CO1	L3
5(a)	Discuss Applications of PV Systems briefly any two of them.	6M	CO2	L1
(b)	Classify with neat sketches, Commercially available PV modules.	6M	CO1	L2
	(OR)			
6(a)	Illustrate with a neat diagram and discuss about Solid Oxide Fuel Cell and its applications.	6M	CO2	L2
(b)	What are the advantages and disadvantages of a fuel cell?	6M	CO1	L2
7(a)	Analyze the Hybrid-inverter topology with necessary diagrams.	6M	CO3	L2
(b)	Describe about AC link Integration of Multiple renewable sources.	6M	CO2	L2
	(OR)			
8(a)	Illustrate the role of converters utilized in non conventional energy generation in integration system with grid.	6M	CO2	L2
(b)	Categorize the different inverters involved in solar energy generation interconnected to grid.	6M	CO1	L1
9(a)	Illustrate with a neat sketch discuss about Bio digester.	6M	CO2	L2
(b)	List out energy storage systems, briefly discuss about them.	6M	CO1	L1
	(OR)			
10(a)	What is Bio Mass? What are the benefits of Bio gas technology? Write the percentage compositions of Bio gas.	6M	CO5	L3
(b)	What is Micro turbine? Explain the construction and working of micro turbine.	6M	CO5	L3

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11/11/25

B.Tech. (V Semester) Supplementary Examinations

17EC90-ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(ECE)

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)	Explain the operation of a full wave rectifier type AC voltmeter with a neat diagram.	6M	CO1	L2
(b)	A basic D'Arsonval movement with a full scale deflection of 50μA and an internal resistance of 500 Ω is available. It is to be Converted into a 0-10V, 0-25V, and 0-50V multi range voltmeter	6M	CO4	L3
	(OR)			
2(a)	Illustrate how multiplier resistances should be arranged to make the voltmeter as Multi range voltmeter.	6M	CO1	L2
(b)	Describe the construction and working of Solid State Voltmeter.	6M	CO1	L2
3(a)	Explain with a diagram the operation of a shunt type ohmmeter. Compare series and shunt type ohmmeter.	6M	CO4	L2
(b)	In a Wien bridge oscillator R1 = R2 =75k Ω, C1=C2= 400pf with usual notation. Determine the frequency of oscillations.	6M	CO4	L3
	(OR)			
4(a)	Calculate the value of the shunt resistance required for a 1mA meter movement having an internal resistance of 100Ω which is used to convert into a multi range ammeter having the range 0-10mA, 0-20mA and 0-50mA.	6M	CO1	L3
(b)	Predict the expression for balance condition to measure unknown inductance and resistance of Anderson's Bridge.	6M	CO1	L3
5(a)	Interpret the operation of basic wave analyzer with circuit diagram.	6M	CO2	L2
(b)	Paraphrase the operation of Heterodyne Wave Analyzer.	6M	CO2	L2
	(OR)			
6(a)	Analyze the operation of laboratory type square and pulse generator with functional block diagram.	6M	CO2	L4
(b)	Describe the operation of random noise generator with help of characteristic curves.	6M	CO2	L2
7(a)	Summarize the features of Digital Storage Oscilloscope.	6M	CO4	L2
(b)	Analyze the method of lissajous patterns for measuring frequencies.	6M	CO4	L4
	(OR)			
8(a)	Outline the function of various blocks present in vertical amplifier of CRO.	6M	CO4	L4
(b)	Analyze working of Dual trace Oscilloscope with functional diagram.	6M	CO4	L4
9(a)	Predict different factors taken in to account while selecting a Transducer.	6M	CO3	L3
(b)	Model the procedure for the measurement of velocity using moving coil type transducer.	6M	CO3	L3
	(OR)			
10(a)	Summarize the characteristics of Transducers.	6M	CO3	L2
(b)	Discuss how a potentiometer can act as transducer.	6M	CO3	L2

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(AUTONOMOUS)

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

17EE90-ELECTRICAL SAFETY

(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)	Discuss the various Safety Voltage Measurement Equipments and Safety Grounding Equipments.	6M	CO1	L1
(b)	Illustrate (i) Safety tags locks and locking Devices (ii) Safety Organization.	6M	CO1	L1
	(OR)			
2(a)	Illustrate the safety electrical one line diagram of a typical plant/Industry with a neat sketch.	6M	CO1	L2
(b)	Summarize the electrician's safety kit.	6M	CO1	L1
3(a)	Enumerate the difference between system grounding and equipment grounding.	6M	CO1	L2
(b)	Explain the purpose of system grounding.	6M	CO2	L2
	(OR)			
4(a)	What is the minimum distance between electrode systems and explain the grounding electrode system?	6M	CO2	L1
(b)	Elucidate the grounding of low voltage and high voltage system.	6M	CO2	L2
5(a)	List out the necessary safety equipments used for handling electrical works during flash hazard under low and high voltage conditions.	6M	CO3	L3
(b)	Describe the six steps safety method considered as part of personnel safety which will enhance safe and efficient performance of Electrical work.	6M	CO3	L2
	(OR)			
6(a)	Summarize how the works/maintenance engineers get alert to potential hazards due to job briefing.	6M	CO3	L3
(b)	Describe the one minute safety audit before the electrical works begins.	6M	CO3	L2
7(a)	Mention the maintenance equipments for specific equipment and location.	6M	CO1	L3
(b)	List out the regulatory bodies and their role in standization of Electrical equipment manufacturing, maintenance, operation and control.	6M	CO3	L2
	(OR)			
8(a)	Explain the importance of frequency of maintenance of Electrical equipments.	6M	CO3	L3
(b)	Summarize the national electrical safety code and its functions.	6M	CO2	L3
9(a)	Discuss the earthing of system neutral.	6M	CO4	L2
(b)	Discuss the Indian Electricity Acts related to Electrical Safety.	6M	CO4	L1
	(OR)			
10(a)	What is Indian Electricity rule? Explain briefly.	6M	CO5	L1
(b)	Explain the step by step procedure of general first aid.	6M	CO5	L2

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