

**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) (R20) Semester End Examinations (Regular - Readmitted) – November 2025**(for Re-admitted students)****TIME TABLE****R20**
(Re-Admitted)

Time : 10.00 AM to 01.00 PM

A.Y. : 2025-26

Branch	18-11-2025 (Tuesday)	20-11-2025 (Thursday)	22-11-2025 (Saturday)	25-11-2025 (Tuesday)	27-11-2025 (Thursday)
				Open Elective - I	Program Elective - I
CE	20CE12-Design of Reinforced Concrete Structures	20CE13-Hydrology and Water Resources Engineering	20CE14-Environmental Engineering	20AD81 - Introduction to Artificial Intelligence	20CE15-Remote Sensing and Geographical Information Systems
CSE (AI & ML)	20CS12-Computer Networks	20AD04-Machine Learning	20CS13-Theory of Computation	20ME81-Renewable Energy Sources	20IT01 - Software Engineering
ECE	20EC09-Digital Communications	20EC10-Antennas and Wave Propagation	20EC11-Linear IC Applications	20IT84-Cyber Security & Digital Forensics	20EC14-Data Communication and Computer Networks

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

Date: 01-11-2025**CONTROLLER OF EXAMINATIONS****PRINCIPAL**

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H.T.No

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

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

RA

**20CE12-DESIGN OF REINFORCED CONCRETE STRUCTURES
(CE)**

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)	Explain about stress block parameters.	7M	CO1	L2
(b)	List the assumptions in Limit state of collapse in flexure.	7M	CO1	L2
(OR)				
2.	A reinforced concrete beam is supported on two walls thick, spaced at a clear distance on 6m. The beam carries a super imposed load of 908 kN/m. Design the beam using M20 concrete mix and HYSD bars of Fe415 grade (use Limit state method).	14M	CO2	L4
3(a)	Design the shear reinforcement for a simply supported beam with the following specifications: (i) Beam width: 350 mm (ii) Effective depth: 550 mm (iii) Uniformly distributed load (including beam's own weight): 60 kN/m (iv) Effective span: 4.5 meters (v) Concrete grade: M20 (vi) Steel yield strength (fy): 415 N/mm ² .	10M	CO3	L4
(b)	Explain about development length.	4M	CO1	L2
(OR)				
4(a)	Explain about Shear and Torsion.	4M	CO1	L2
(b)	Design the shear reinforcement (stirrups) for a reinforced concrete beam with a width of 300 mm and an effective depth of 450 mm, subjected to an ultimate design shear force of 180kN at the critical section near the supports. Use M20 grade concrete and Fe415 steel.	10M	CO3	L4
5(a)	Explain about the restrained slabs.	7M	CO1	L2
(b)	Define slab and Explain in detail about the types of slabs.	7M	CO1	L2
(OR)				
6.	Design a two way slab for a room 4m x 3.5m clear in size if the super imposed load is 3 kN/m ² and floor finish of 1 kN/m ² . The edges of slab are simply supported and corners are not held down. Use M20 grade concrete and Fe 415 steel.	14M	CO4	L4
7(a)	Differentiate short Column and long column.	4M	CO1	L2
(b)	Design a circular column with helical reinforcement, to carry an axial load of 1000kN. Use M20 concrete and Fe 415 steel.	10M	CO3	L4
(OR)				
8(a)	Design a short axially loaded square column 500 mm x 500mm for a service load of 2000 kN. Use M20 concrete and Fe 415 grade steel.	7M	CO3	L4
(b)	Define Column and explain the classification of columns.	7M	CO1	L2
9(a)	Classify the footings with neat sketches.	7M	CO1	L2
(b)	Define footing and draw a neat sketch of Isolated square with reinforcement.	7M	CO1	L2
(OR)				
10.	Design a rectangular isolated footing of uniform thickness for R.C. column bearing a vertical load of 600kN, and having a base size of 400 x 600 mm. The safe bearing capacity of the soil is 120kN/m ² . Use M 20 concrete and Fe 415 steel.	14M	CO4	L4

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B.Tech. (V Semester) Regular Examinations

20EC09-DIGITAL COMMUNICATIONS

(ECE)

RA

9.22

Time : 3 hours

Max. Marks : 70

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Discuss the necessity of non-uniform quantization and explain companding.	7M	CO1	L2
(b)	Explain the Adaptive Delta Modulation(ADM) with neat block diagram. Also discuss how the step size is varied.	7M	CO2	L2
(OR)				
2(a)	Find the general expression for output SNR in PCM system. Also find the SNR if the input signal is sinusoid.	7M	CO2	L3
(b)	A delta modulator is designed to operate at five times the Nyquist rate for a signal with 3kHz bandwidth. Determine the maximum amplitude of 2 kHz input sinusoid for which the delta modulator does not slope overload. Quantizing step size is 250mV.	7M	CO2	L3
3(a)	Describe the model of digital communication system with an example.	7M	CO3	L2
(b)	Explain the concept of correlation receiver in the detection process in digital communication system.	7M	CO3	L2
(OR)				
4(a)	Explain the concept of Matched filter receiver with help of neat diagrams.	7M	CO3	L2
(b)	Derive an expression for probability of error of an optimum receiver.	7M	CO3	L3
5(a)	Describe generation and reception of BFSK signal with neat block diagrams.	7M	CO2	L2
(b)	Derive an expression for probability of error of BASK receiver assuming the channel is Gaussian.	7M	CO3	L3
(OR)				
6(a)	Apply digital modulation scheme with necessary diagrams and waveforms to generate and detect coherent binary frequency shift keying (BPSK) signal transmission and also draw the constellation diagram.	7M	CO2	L2
(b)	Derive an expression for probability of error of BFSK receiver assuming the channel is Gaussian.	7M	CO3	L3
7(a)	Show that $H(X,Y) = H(X/Y) + H(Y)$	7M	CO4	L3
(b)	Define Entropy with its properties. Determine the entropy of the source alphabets with their probabilities $\frac{1}{2}, \frac{1}{4}, \frac{1}{2}, \frac{1}{2}$.	7M	CO4	L3
(OR)				
8(a)	State and prove the following properties of mutual information. i) $I(X;Y) = H(X) - H(X/Y)$ ii) $I(X;Y) = H(X) + H(Y) - H(X,Y)$	7M	CO4	L3
(b)	Apply Shannon-Fano coding for the following message symbols with the probabilities are given as $m_1=0.4, m_2=0.15, m_3=0.15, m_4=0.15, m_5=0.15$. Find (i) $H(X)$ (ii) L (iii) η .	7M	CO4	L3
9(a)	Interpret the procedure to generate linear block codes using generator matrix and to check the error at the receiver.	7M	CO4	L2
(b)	Find the code vector for the given input $[1 \ 0 \ 1 \ 1 \ 0 \ 1]$ of code rate $\frac{1}{2}$ convolution encoder having generating vectors $g^{[1]}=[1 \ 1 \ 0]$ and $g^{[2]}=[0 \ 1 \ 1]$.	7M	CO4	L3
(OR)				
10(a)	In a (7,4) systematic cyclic code, the generator polynomial is given by $g(x) = 1+x^2+x^3$. Obtain the code vector for the message $[1 \ 1 \ 1 \ 1]$.	7M	CO4	L3
(b)	Draw the code tree for the convolutional encoder with impulse responses $g^1=[1 \ 1 \ 1]$ and $g^2=[1 \ 1 \ 0]$. Also find the code vector from code tree.	7M	CO4	L3

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

B.Tech. (V Semester) Regular Examinations

**20CE13-HYDROLOGY AND WATER RESOURCES ENGINEERING
(CE)**

RA

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20/11/20

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 with the help of neat sketch the hydrologic cycle.	7M	CO1	L2																				
(b)	In a river basin a station A was inoperative during a storm, while stations B,C,D and E surrounding A were in operation, registering 74mm, 88mm, 71mm, and 80 mm of precipitation. The coordinates of B, C, D and E are (9,6), (12,-9), (-11,-6) and (7,-7) respectively with co-ordinates of A as (0,0). Estimate the missing storm precipitation of station A by the inverse distance method.	7M	CO2	L3																				
(OR)																								
2(a)	Describe with a neat sketch the principle of working of symon's non-recording raingauge.	7M	CO1	L2																				
(b)	A catchment has five raingauge stations. In a year, the annual rainfall recorded by the gauges are 78.8 cm, 90.2cm, 98.6cm, 102.4cm and 70.4 cm for a 6% error in the estimation of the mean rainfall, determine the additional number of gauges needed.	7M	CO2	L3																				
3(a)	Describe the various physiographic factors which affect runoff.	7M	CO1	L2																				
(b)	Derive an expression for the steady state discharge of well fully penetrating into a confined aquifer.	7M	CO1	L2																				
(OR)																								
4(a)	List out the assumptions made in the analysis of steady radial flow into well.	7M	CO1	L1																				
(b)	During a recuperation test conducted on an open well in a region, the water level in the well was depressed by 3 m and it was observed to rise by 1.75 m in 75 minutes. (i) Determine the specific yield of open wells in that region. (ii) Determine the yield from a well of 5 m diameter under a depression head of 2.5 m. (iii) Determine the diameter of the well to give a yield of 12 lit/s under a depression head of 2.0 m.	7M	CO3	L3																				
5(a)	Given below are the ordinates of a 4 h unit hydrograph for a catchment, calculate the ordinates of the flood hydrograph due to a rainfall excess of 3.5 cm occurring in 4 h Assume base flow to be uniform at 10 m ³ /s.	7M	CO3	L3																				
	<table border="1"> <tr> <td>Time (h)</td> <td>0</td> <td>4</td> <td>8</td> <td>12</td> <td>16</td> <td>20</td> <td>24</td> <td>28</td> <td>32</td> </tr> <tr> <td>Ordinates of 4-h UH (m³/s)</td> <td>0</td> <td>15</td> <td>30</td> <td>60</td> <td>50</td> <td>25</td> <td>10</td> <td>5</td> <td>0</td> </tr> </table>	Time (h)	0	4	8	12	16	20	24	28	32	Ordinates of 4-h UH (m ³ /s)	0	15	30	60	50	25	10	5	0			
Time (h)	0	4	8	12	16	20	24	28	32															
Ordinates of 4-h UH (m ³ /s)	0	15	30	60	50	25	10	5	0															

20CE13-HYDROLOGY AND WATER RESOURCES ENGINEERING

(b)	Discuss about the unit hydrograph of different duration. Summarises the method of superposition.	7M	CO1	L2																				
(OR)																								
6(a)	Sketch a typical hydrograph resulting from an isolated storm and identify the features of the same.	7M	CO1	L2																				
(b)	Given the ordinates of a 3-h unit hydrograph as below. Derive the ordinates of 6-h unit hydrograph for the same catchment by s-curve method.	7M	CO3	L3																				
	<table border="1"> <tr> <td>Time (h)</td> <td>0</td> <td>3</td> <td>6</td> <td>9</td> <td>12</td> <td>15</td> <td>18</td> <td>21</td> <td>24</td> </tr> <tr> <td>Ordinates of 3-h UH (m³/s)</td> <td>0</td> <td>25</td> <td>50</td> <td>85</td> <td>100</td> <td>70</td> <td>40</td> <td>25</td> <td>15</td> </tr> </table>				Time (h)	0	3	6	9	12	15	18	21	24	Ordinates of 3-h UH (m ³ /s)	0	25	50	85	100	70	40	25	15
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Ordinates of 3-h UH (m ³ /s)	0	25	50	85	100	70	40	25	15															
7(a)	Describe in detail sprinkler method of irrigation. Indicate the advantages and limitations of this method.	7M	CO4	L2																				
(b)	Illustrate in detail the check flooding and the ring basin flooding.	7M	CO4	L2																				
(OR)																								
8(a)	Discuss briefly the factors affecting duty.	7M	CO4	L2																				
(b)	A water course has a culturable commanded area of 1200 hectares. The intensity of irrigation for crop 'A' is 40 % and for 'B' is 35 %, both the crops being Rabi crops. Crop 'A' has a kor period of 20 days and crop 'B' has kor period of 15 days. Calculate the discharge of the water course if the kor depth for crop 'A' is 10 cm and for 'B' it is 16 cm.	7M	CO5	L3																				
9(a)	Distinguish between a ridge canal and a contour canal.	7M	CO4	L2																				
(b)	Design a channel by lacey's theory for 40 cumecs capacity. The side slopes may be assumed to be 1:1. The Average size of the bed material may be taken as 0.8 mm.	7M	CO5	L3																				
(OR)																								
10(a)	Explain the procedure for designing an irrigation channel using Kennedy's theory.	7M	CO4	L2																				
(b)	Design a concrete lined channel to carry a discharge of 40 cumec at a slope of 1 in 8100. The side slopes of the channel are 1.25 : 1. The value of Manning's N may be taken as 0.016. (Triangular section with circular bottom).	7M	CO5	L3																				

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B.Tech. (V Semester) Regular Examinations

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20/11/25

**20EC10-ANTENNAS AND WAVE PROPAGATION
(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)	Discuss the following antenna parameters (i) Vertical pattern (ii) Radiation lobes (iii) Effective Aperture (iv) HPBW	7M	CO1	L2
(b)	An antenna has a radiation resistance of 73Ω and a loss resistance of 7Ω . if power gain is 20, calculate the directivity and efficiency of the antenna.	7M	CO1	L3
(OR)				
2.	Show that radiation resistance of half wave dipole antenna is 73Ω .	14M	CO2	L4
3(a)	Differentiate broad side and end fire arrays	7M	CO2	L2
(b)	Analyze array of two point sources fed with currents of equal magnitude and unequal phase.	7M	CO2	L4
(OR)				
4(a)	Illustrate the array of 8 point sources using method of pattern multiplication.	7M	CO2	L3
(b)	A broad side array of 4 isotropic antenna separated by distance of $\lambda/2$. Deduce radiation field in a plane containing line of array showing directions of maxima's and Nulls.	7M	CO2	L3
5(a)	Differentiate periodic and aperiodic antennas.	7M	CO3	L2
(b)	For a 20 turn helical antenna operating at 3GHz with circumference of 10cm and spacing between the turns 0.3λ is operating at 3GHz. Find the directivity and HPBW.	7M	CO3	L3
(OR)				
6(a)	Outline the characteristics of helical antenna in normal mode.	7M	CO3	L3
(b)	Classify the characteristics of Yagi-Uda antenna.	7M	CO3	L2
7(a)	Explain the basic principle of operation of reflector antennas. And illustrate the operation of a paraboloid reflector.	7M	CO3	L2
(b)	What are the applications and drawbacks of Patch antennas? Discuss in detail.	7M	CO3	L3
(OR)				
8(a)	Demonstrate the measurement of gain of antenna using absolute gain method.	7M	CO4	L2
(b)	Demonstrate the measurement of impedance of an antenna using wheat-stone bridge method.	7M	CO4	L2
9(a)	Categorize briefly the different types of wave propagation in the atmosphere.	7M	CO1	L2
(b)	Discuss the fundamental equation of space wave propagation with related equations	7M	CO2	L3
(OR)				
10(a)	Summarize the characteristics of D, E & F layers in the ionosphere.	7M	CO1	L2
(b)	Determine the radio horizon distance between transmitting and receiving antenna for space wave propagation.	7M	CO2	L3

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B.Tech. (V Semester) Regular Examinations

20CE14-ENVIRONMENTAL ENGINEERING

(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)	List out the components of a water supply system. Explain their roles.	7M	CO1	L2
(b)	The following data shows the variation in population of a city from 1940-1990. Estimate the population of the city in year 2000 using geometrical increase method. The population in the years 1940, 1950, 1960, 1970, 1980 and 1990 are 25,000, 40,000, 68,000, 85,000, 105,000 and 130,000 respectively.	7M	CO1	L3
(OR)				
2(a)	Discuss the population prediction using Graphical Extension method using neat sketch.	7M	CO1	L2
(b)	Discuss the various types of water demands.	7M	CO1	L2
3(a)	Explain the Jar test procedure in raw water treatment.	7M	CO1	L2
(b)	A plain circular sedimentation tank of 200 m ² is designed in a water treatment plant carrying 10 MLD of raw water. Assuming liquid depth as 3m, compute (i) Surface overflow rate (ii) Detention time (iii) weir loading (iv) sludge hopper depth @ 10% slope.	7M	CO2	L3
(OR)				
4(a)	Prove the following for sedimentation (i) $L/V_h = H/V_s$ (ii) $SOR = Q/LB$.	7M	CO1	L2
(b)	In a water treatment plant handling 10 MLD of raw water, 10 mg/L of alum is used. Calculate the amount of alum used in kg/d. If the cost of alum is Rs 100 per kg, calculate the cost of alum required in the plant per day.	7M	CO2	L3
5(a)	Define disinfection and explain its mechanism. Discuss the factors affecting a good disinfectant.	7M	CO3	L2
(b)	A slow sand filter is to be designed for 15 MLD of raw water @ filtration rate of 100 L/hr/m ² . Determine the area, size and the number of beds @ $L/B = 1.25$. The size of filter bed should not exceed 1000m ² .	7M	CO3	L3
(OR)				
6(a)	Justify the backwashing process and describe the mechanism in a rapid sand filter using neat sketch.	7M	CO3	L2
(b)	Describe the Solar disinfection, boiling and excess lime treatment of disinfection methods.	7M	CO3	L2
7(a)	Discuss the following: (i) Incubation period (ii) Incubation temperature (iii) Dilution factor.	7M	CO1	L2
(b)	A primary sedimentation tank is designed with a SOR of 25 m/d at an average flow of 10 MLD of sewage. Determine its area and diameter. Assuming side water depth of 3 m, compute its detention time. Determine its SOR at peak flow for a peak flow rate of 2.	7M	CO4	L3
(OR)				
8(a)	Discuss the objectives, principles and unit operations used in primary, preliminary and secondary treatment operations.	7M	CO1	L2
(b)	The 2-day BOD of a sewage sample is 200 mg/L at 25C. Determine its 5-d BOD at 20C. Assume, $K_d = 0.23d^{-1}$ @ 20C (base e).	7M	CO4	L3
9(a)	Illustrate the concept of bacterial growth patterns.	7M	CO5	L2
(b)	Explain the function, construction and working of sludge drying beds.	7M	CO5	L2
(OR)				
10(a)	Compare the salient features of low rate and high rate trickling filters.	7M	CO5	L2
(b)	Discuss the mechanism of anaerobic digestion.	7M	CO5	L2

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B.Tech. (V Semester) Regular Examinations

20EC11-LINEAR IC APPLICATIONS

(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 basic current source circuit.	7M	CO1	L2
(b)	Design Widlar current source for generating a constant current $I_o=10\mu A$. Assume $V_{CC}=10V, V_{BE}=0.7V, \beta=125$. Use $V_T=25mV$.	7M	CO1	L3
(OR)				
2.	Analyze the single input, balanced output configuration of differential amplifier using DC and AC analysis.	14M	CO3	L4
3(a)	Discuss the building blocks of operational amplifier in detail.	7M	CO1	L2
(b)	Explain the operation of Analog multiplier with circuit diagram.	7M	CO1	L2
(OR)				
4(a)	Analyze the basic Integrator and Differentiator circuits using IC 741 Op-Amp.	7M	CO2	L2
(b)	What is logarithmic amplifier and derive the output voltage of logarithmic amplifier?	7M	CO2	L3
5(a)	Define filter and classify filters based on frequency response.	7M	CO1	L2
(b)	Analyze the first order Butterworth high pass filter and draw its frequency response.	7M	CO3	L4
(OR)				
6(a)	Summarize inverting comparator with waveforms.	7M	CO1	L2
(b)	Derive the transfer function of all pass filter and draw its input and output voltage signals plot.	7M	CO2	L3
7(a)	Analyze the monostable multivibrator using 555 timer.	7M	CO3	L4
(b)	Design monostable multivibrator using 555 timer to generate the output signal with pulse width duration of 100ms assuming C as $0.9\mu F$.	7M	CO4	L3
(OR)				
8(a)	Illustrate IC 565 PLL and explain its operation.	7M	CO1	L2
(b)	Discuss adjustable voltage regulators.	7M	CO2	L2
9(a)	Interpret R-2R ladder DAC and derive the expression for output voltage.	7M	CO1	L3
(b)	Calculate the output voltage produced by a DAC whose output range is 0-10V and whose input binary number is (i) 11 (ii) 1010 (iii) 11110000.	7M	CO2	L3
(OR)				
10(a)	Outline parallel comparator type ADC with diagram.	7M	CO2	L2
(b)	The LSB of 10 bit DAC 20 mV. Calculate the following parameters. (i) Percentage of resolution (ii) Full scale range (iii) Output voltage for input 1111101101.	7M	CO2	L3

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B.Tech. (V Semester) Regular Examinations

20AD81-INTRODUCTION TO ARTIFICIAL INTELLIGENCE

(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)	What is AI? What are the goals and advantages of AI.	7M	CO1	L2
(b)	Discuss the current trends of AI in detail.	7M	CO1	L2
(OR)				
2(a)	Describe the agents and environments with diagram.	7M	CO1	L2
(b)	What is agent? Describe learning agent based on behavior.	7M	CO1	L2
3.	Implement the working of A* algorithm with an example.	14M	CO2	L3
(OR)				
4(a)	Discuss about uninformed and informed search strategies.	7M	CO2	L2
(b)	Write the algorithm for different types of hill climbing techniques.	7M	CO2	L2
5(a)	Implement Depth First search technique.	7M	CO3	L3
(b)	Illustrate Iterative deepening DFS technique for problem solving.	7M	CO3	L3
(OR)				
6(a)	How does uniform cost search (UCS) differ from other uninformed search algorithms?	4M	CO3	L3
(b)	Implement Depth Limited search technique with example.	10M	CO3	L3
7(a)	What is Adversarial Search? Explain with an example.	7M	CO4	L2
(b)	Explain Issues in Knowledge Representation.	7M	CO4	L2
(OR)				
8(a)	Explain the Architecture of Knowledge based agent.	7M	CO4	L2
(b)	Discuss the approaches of Knowledge representation.	7M	CO4	L2
9(a)	What are the desirable properties of knowledge representation?	7M	CO5	L2
(b)	Compare and contrast proposition logic and predicate logic as knowledge representation techniques.	7M	CO5	L2
(OR)				
10(a)	Explain Logical representation technique in the knowledge representation.	7M	CO5	L2
(b)	Describe the concept of The Internet Shopping World.	7M	CO5	L2

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B.Tech. (V Semester) Regular Examinations

RA

20IT84-CYBER SECURITY AND DIGITAL FORENSICS

(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)	Illustrate the types of attacks on mobile phones.	7M	CO1	L3
(b)	Illustrate the unique security challenges posed by mobile devices in the digital era.	7M	CO1	L3
(OR)				
2(a)	Demonstrate the network and computer Attacks.	7M	CO1	L3
(b)	Define cyberstacking and Illustrate different types of cyberstacking with an example.	7M	CO1	L3
(OR)				
3(a)	List the real-world examples of viruses and worms that will cause damage to the user.	7M	CO2	L2
(b)	How do cybercriminals employ Trojan horses and backdoors to compromise systems?	7M	CO2	L1
(OR)				
4(a)	What is steganography, and how does it enable to covert communication in cybercrimes?	7M	CO2	L2
(b)	How does session hijacking risk in online security, and what techniques are used in session hijacking attacks?	7M	CO2	L2
(OR)				
5(a)	Elaborate the term cyber forensics and its types.	7M	CO3	L2
(b)	Summarize the role of email forensics in cybercrime investigations.	7M	CO3	L2
(OR)				
6(a)	Discuss about different disk forensics and list its advantages and its disadvantages.	7M	CO3	L2
(b)	Elaborate the concept of mobile forensics and its significance.	7M	CO3	L2
(OR)				
7(a)	Illustrate the impediments faced when collecting digital evidence in investigations.	7M	CO4	L3
(b)	With a neat explanation illustrate the boot process of various operating systems and their relevance to digital forensics.	7M	CO4	L3
(OR)				
8(a)	Illustrate the primary sources of digital evidence in cybersecurity and forensic investigations with an example.	7M	CO4	L3
(b)	Demonstrate different artifacts in Linux systems that are valuable for digital evidence collection.	7M	CO4	L3
(OR)				
9.	Classify the key functions and applications of forensic tools for email analysis in cyber forensic investigations.	14M	CO5	L4
(OR)				
10(a)	Analyze the current state and future outlook of cyber forensics, particularly regarding forensic tools.	7M	CO5	L4
(b)	Compare the role of forensic tools in analyzing network-related evidence in cybercrime cases.	7M	CO5	L4

H.T.No

27 NOV 2025

R20

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

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

B.Tech. (V Semester) Regular Examinations

RA

27/11/25

**20CE15-REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEMS
(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)	Explain in detail about the applications of aerial photo interpretation.	7M	CO1	L2
(b)	What is meant by Photogrammetry? Explain with examples.	7M	CO1	L2
(OR)				
2(a)	State and explain the types of aerial photographs.	7M	CO1	L2
(b)	Explain how height is measured based on relief displacement in aerial photography.	7M	CO1	L2
3(a)	What is electromagnetic spectrum? Explain with a neat sketch.	7M	CO2	L2
(b)	List out the important satellites and their sensors.	7M	CO2	L1
(OR)				
4(a)	Explain about EMR's interaction with earth's surface.	7M	CO2	L2
(b)	Which portions of the electromagnetic spectrum are of particular interest in Remote Sensing? Explain.	7M	CO2	L2
5(a)	Give the details of the important map projections applicable to Indian regions.	7M	CO3	L1
(b)	Explain the importance of overlaying index methods in GIS.	7M	CO3	L2
(OR)				
6(a)	Define (i) spheroid (ii) datum (iii) latitude (iv) Meridian.	7M	CO3	L1
(b)	What is the importance of map projections in GIS? Explain.	7M	CO3	L2
7(a)	Give comparison between vector and raster data structures.	7M	CO4	L2
(b)	What is vector overlay operation? Explain.	7M	CO4	L2
(OR)				
8(a)	Explain raster data structures and its types.	7M	CO4	L2
(b)	Write about conditional expressions in spatial analysis.	7M	CO4	L1
9(a)	Discuss the remote sensing requirements for land use/land cover mapping?	7M	CO5	L2
(b)	Mention the specific resolution needs in flood zone mapping and discuss the methodology used in such studies.	7M	CO5	L2
(OR)				
10(a)	Describe the GIS layers developed for groundwater potential zoning mapping?	7M	CO5	L2
(b)	Discuss the remote sensing approach for conducting groundwater pollution studies.	7M	CO5	L2

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B.Tech. (V Semester) Regular Examinations

**20EC14-DATA COMMUNICATION AND COMPUTER NETWORKS
(ECE)**

RA.

27/11/25

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 Open Systems Interconnection.	4M	CO1	L1
(b)	Discuss about the OSI seven-layer International Protocol hierarchy.	10M	CO1	L2
(OR)				
2(a)	Describe about various network topologies. Also give a brief description of network classification.	4M	CO1	L2
(b)	What is Guided Transmission media in the and how it works in the Physical layer of any reference model?	10M	CO1	L1
(OR)				
3.	Write note on (i) Ethernet (ii) Bluetooth (iii) Multiple Access protocols.	14M	CO2	L1
(OR)				
4(a)	Illustrate Error Correcting and Error Detecting codes.	7M	CO2	L2
(b)	Discuss in detail about the sliding window protocol using Selective Repeat.	7M	CO2	L3
(OR)				
5(a)	Illustrate Routing of Packets within Virtual Circuit Subnet.	7M	CO3	L3
(b)	What are the general principles of congestion control? Explain.	7M	CO3	L2
(OR)				
6(a)	Summarize detail about the Efficiency and Delay in Datagram Networks.	7M	CO3	L4
(b)	Describe the Dijkstra's Shortest Path Routing Algorithm with an example.	7M	CO3	L3
(OR)				
7(a)	Write short note on (i) OSPF (ii) BGP.	7M	CO4	L1
(b)	Discuss the duties of transport layer and discuss the performance issues of transport layer.	7M	CO4	L2
(OR)				
8(a)	Compare and contrast IPV4 and IPV6.	7M	CO4	L2
(b)	How is the Connectionless Service implemented? Explain.	7M	CO4	L2
(OR)				
9(a)	Compare and Contrast the UDP header and the TCP header.	7M	CO5	L4
(b)	What is a URL and explain about its components?	7M	CO5	L2
(OR)				
10(a)	Describe TCP Service model along with it's Protocols.	7M	CO5	L2
(b)	How DNS service maps domain names to IP addresses?	7M	CO5	L2
