



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

II B.Tech II Sem Supply End Examination, March 2022

Analog and Digital Communications

(ECE)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Answer any FIVE questions.

2. Each question carries 14 marks and may have a, b as sub questions.

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|---|----|---|----|-----|-----|
| 1 | a) | Draw the time and frequency domain of single tone amplitude modulated waveform for modulation indices of 0.25, 0.5, 0.75 and 1. | 7M | CO1 | BL1 |
| | b) | Illustrate the demodulation of standard AM signal using envelope detector. | 7M | CO1 | BL1 |
| 2 | a) | Compare the performance of AM, DSB-SC, SSB-SC and VSB-SC modulation schemes with reference to power and bandwidth. | 7M | CO1 | BL2 |
| | b) | Derive a time domain equation for SSB-SC modulated signal using block diagram for its generation and demodulation. | 7M | CO1 | BL1 |
| 3 | a) | Explain the how the use of pre-emphasis and de-emphasis in FM transmission will boost SNR performance. | 7M | CO2 | BL1 |
| | b) | Show that the wide band FM has constant average power irrespective of number of sidebands | 7M | CO2 | BL3 |
| 4 | a) | Discuss the demodulation of FM using phase locked loop. | 7M | CO2 | BL1 |
| | b) | Draw and explain the operation of FM broadcast transmitter. | 7M | CO3 | BL2 |
| 5 | a) | Define the parameters sensitivity, selectivity, fidelity, image frequency rejection and choice of IF selection. | 7M | CO3 | BL3 |
| | b) | Write short notes on the use of AGC and amplitude limiter in standard FM receiver. | 7M | CO3 | BL1 |
| 6 | a) | Draw the basic block diagram of pulse code modulation. With considering one example discusses its operation. | 7M | CO4 | BL2 |
| | b) | Write short notes on PAM, PWM and PPM schemes. | 7M | CO4 | BL3 |
| 7 | a) | Explain the generation, demodulation of delta modulation schemes. | 7M | CO4 | BL1 |
| | b) | With necessary waveforms explain the coherent demodulation of ASK and FSK. | 7M | CO5 | BL1 |
| 8 | a) | Write short notes on probability of error and optimum receiver. | 7M | CO5 | BL3 |
| | b) | Illustrate the importance of eye diagram in evaluating the performance of digital communications systems. | 7M | CO5 | BL2 |