

Code No.: EC402PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS

II-B.TECH-II-Semester End Examinations (Supply) - February- 2023
ANALOG AND DIGITAL COMMUNICATIONS
(ECE)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(20 Marks)

1. a) Define Modulated signal and carrier signal. [2M]
- b) Write the time domain representation of SSB signal. [2M]
- c) Compare Narrow Band FM and Wide Band FM. [2M]
- d) What is pre-emphasis? Why is it used? [2M]
- e) What is meant by Automatic Frequency Control? [2M]
- f) What is tracking? What is the necessity of tracking in radio receivers? [2M]
- g) Compare FDM and TDM. [2M]
- h) Define pulse code modulation. [2M]
- i) Why FSK & PSK signals are preferred over ASK signals? [2M]
- j) What is meant by Coherent reception? [2M]

PART-B

(50 Marks)

2. Write the equation of a single tone modulation of AM system and also power relations. [10M]
- OR**
3. Explain the frequency discrimination method for generating SSB signal. [10M]
4. a) Analyze sinusoidal FM wave with the help of its spectrum. [5M]
- b) Discuss the generation of FM wave using Armstrong method. [5M]
- OR**
5. What are the different demodulation techniques of FM? Explain the demodulation of FM signal with the help of PLL. [10M]
6. Draw the reactance modulated FM transmitter and explain its operation. [10M]
- OR**
7. With a neat block diagram explain the working of Tuned Radio Frequency (TRF) Receiver. What are the disadvantages of TRF receiver? [10M]
8. Compare PAM, PWM and PPM modulation techniques and explain how PPM signal can be generated from PWM signal? [10M]
- OR**
9. What are the two major sources of noise in Delta modulation? Derive the expression for the output signal to quantization noise ratio in PCM. [10M]
10. Draw the ASK, FSK and BPSK waveforms for the bit stream 10110001 and differentiate coherent and non-coherent detection. [10M]
- OR**
11. Explain the following [10M]
 - i. Optimum receiver.
 - ii. Eye Diagram.
