

Code No.: EC402PC

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**CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS**

**II-B.TECH-II-Semester End Examinations (Regular) - August- 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 modulation index. [2M]
- b) Explain about Coherent detection of DSBSC modulated wave? [2M]
- c) Find constant average power in Angle Modulation? [2M]
- d) Give short note on Phase Modulation? [2M]
- e) Write few points about Frequency Changing and Tracking with diagram? [2M]
- f) Explain about Amplitude Limiting? [2M]
- g) Define Pulse Modulation and different types of Pulse Modulation? [2M]
- h) Comparison of FDM and TDM in short? [2M]
- i) Explain the principle of QPSK? [2M]
- j) What is mean by optimum Receiver? [2M]

PART-B

(50 Marks)

2. Explain about COSTAS loop in detail? [10M]
- OR**
3. Find Frequency and Time domain description of DSBSC modulator? [10M]
- An Amplitude Modulated signal has the form
4. $v(t)=100 [1+4\sin 2000\pi t]\cos 2\pi f_c t$ where $f_c=10\text{kHz}$. [10M]
Find the total transmitted power, carrier power and sidebands power? (if $\mu=1$).
- OR**
5. Derive the single tone modulation in frequency modulation? [10M]
6. Describe briefly about Superheterodyne receiver? [10M]
- OR**
7. Explain FM transmitters in detail and write its applications. [10M]
8. Define Delta Modulation and Adaptive DM? [10M]
- OR**
9. Construct and explain the working of Pulse Code Modulation (PCM) and generation, reconstruction of it? [10M]
10. Explain ASK modulator and coherent ASK detector in Digital Modulation technique? [10M]
- OR**
11. What is the difference between BPSK and QPSK detector? [10M]
