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Roll No

CS-4003-CBGS

B.E. IV Semester

Examination, December 2020

Choice Based Grading System (CBGS)

Analog and Digital Communication

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Give the difference between Time domain and Frequency domain representation of signals with suitable examples.
b) Discuss the different properties of Fourier Transform.
2. a) Describe the need of modulation. Comment on Bandwidth and modulation index of AM.
b) Explain synchronous detection technique of AM-SC system and comment on phase and frequency errors.
3. a) What is DSB-SC modulation? Draw and explain product modulator and frequency spectrum of DSB-SC modulation system.
b) What is SSB-SC modulation? Explain frequency and phase discrimination methods of SSB-SC generation.
4. a) A carrier $A \cos w_c t$ is modulated by a single tone modulating signal $f(t) = E_m \cos w_m t$. Find
 - i) Total modulated power
 - ii) rms value of modulated signal
 - iii) Transmission efficiency for a 100% modulation

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- b) Draw and explain chopper type (switching) modulator circuit.
- 5. a) What do you mean by Quantization? Explain Quantization error with suitable example.
b) Write and explain functioning of pulse code modulation system. Comment on its Bandwidth.
- 6. a) Discuss the concept of aperture effect and how can it be overcome.
b) Explain the generation and detection of PWM signal.
- 7. a) Give a brief introduction on Natural and Flat top sampling.
b) Write any five differences between offset and non offset QPSK.
- 8. Write short notes on any two:
 - a) Chopper Modulator
 - b) TDM
 - c) QPSK
 - d) WBFM
