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Total Number of Pages: 02

Course: B.Tech
Sub_Code: REE6C001

6th Semester Regular/Back Examination: 2024 - 2025

SUBJECT : COMMUNICATION ENGINEERING

BRANCH(S): AEIE, EEE, EIE, ELECTRICAL

Time: 3 Hours

Max Marks: 100

Q.Code: S165

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

Part-I

Q1 Answer the following questions : (2 x 10)

- State the correlation property of Fourier transform.
- Compare between DSB and VSB modulation.
- Unit ramp signal is an energy signal or power signal, why?
- What are the advantages of FM?
- Write the demerits of SSB modulation system.
- Write the exponential form of Fourier Series and its use.
- Find sampling frequency for the digitization of a low pass signal with cutoff frequency of 1250 KHz, sampled at Nyquist rate.
- What is quantization noise, how it can be mitigated?
- What is noise in DM system?
- Distinguish between PCM and DPCM.

Part-II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- What is a communication channel? Classify it and explain their various applications.
- State and prove the convolution property of Fourier transform.
- What should be sampling frequency for a band pass signal of bandwidth 3B Hz, prove it with the help of spectrums.
- What is an NBFM modulator? Explain with circuit diagram.
- Define modulation index of an AM system; draw the modulated signal waveform for a triangular modulating signal.
- What is Fourier transform and explain about its applications.
- What is DSB-SC modulation? Mention its merits and demerits.
- Explain about the noise in DM system.
- In a binary PCM system, a sinusoidal signal with frequency 85 Hz, peak to peak voltage of 7 Volt, is sampled at Nyquist rate. The samples are processed by a uniform quantizer with step size of 0.5 Volt. Find the minimum data rate of the PCM system.

- j) What is adaptive delta modulation? Discuss its applications.
- k) Compare between DM and ADM system.
- l) What is companding, how it can provide uniform quantization error?

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

(16 x 2)

- Q3** State and prove the various properties of Fourier transform. How is it used for analysis of a communication system? **(16)**
- Q4** What is angle modulation? Mention its variants. Explain in detail about its modulator and demodulator circuits. Mention its merits and demerits with examples. **(16)**
- Q5** Explain about PCM system in detail with noise analysis. What is DPCM, DM, and ADM modulation? **(16)**
- Q6** What is PAM, PWM, and PPM? Explain its modulator and demodulators with its merits, demerits, and applications. **(16)**