Registration No :

6th Semester Regular / Back Examination: 2022 - 2023
SUBJECT : COMMUNICATION ENGINEERING
BRANCH(S): AEIE, EEE, ELECTRICAL
Time : 3 Hour
Max Marks :100
Q. Code : M438
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)

   a) State the convolution property of Fourier transforms.
   b) Unit ramp signal is an energy signal or power signal, why?
   c) Compare between SSB and VSB modulation.
   d) In TV, which modulation is used and why?
   e) Write the exponential form of Fourier Series and its use.
   f) Write the demerits of AM modulation system.
   g) Find sampling frequency for the digitization of a low pass signal with cutoff frequency of 150 KHz, sampled at Nyquist rate.
   h) What is A-law, where it is used?
   i) Distinguish between DPCM and DM.
   j) What is noise in DM system?

Part-II

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

   a) Classify various types of wireless communication channels with their applications.
   b) What should be sampling frequency for a band pass signal of bandwidth 2B Hz? Prove it with the help of spectrums.
   c) State and prove the correlation property of Fourier transform.
   d) Define modulation index of an FM system; draw the modulated signal waveform for a triangular modulating signal. What is NBFM system?
   e) What is an AM modulator, explain with circuit diagram?
   f) What is Fourier series and explain about its applications.
   g) In a binary PCM system, a sinusoidal signal with frequency 65 Hz, peak to peak voltage of 8.5 volt, is sampled at Nyquist rate. The samples are processed by a uniform quantizes with step size of 0.5 volt. Find the minimum data rate of the PCM system?
   h) What is VSB modulation, its merits and demerits?
   i) Explain about the noise in DM system.
   j) What is adaptive delta modulation and its applications?
   k) What is commanding? How it can provide uniform quantization error?
   l) Compare between DM and ADM system.

Part-III

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

Q3 State and prove the convolution property of Fourier transform. How it is useful for analysis of a communication system? **(16)**

Q4 What is angle modulation, its types? Explain in detail. Mention its merits and demerits with examples. **(16)**

Q5 What are the pulse analog modulations? Explain its modulator, demodulators with its merits, demerits and applications. **(16)**

Q6 Explain PCM system in detail with noise analysis. What is DPCM, DM and ADM system? **(16)**