

# BHARATI VIDYAPEETH'S INSTITUTE OF TECHNOLOGY, NAVI MUMBAI

## Question Bank (K - Scheme)

Name of Subject: PRINCIPLES OF ELECTRONIC COMMUNICATION

Unit Test :

Subject code: 313326

Course: EJ

Semester: III

### CHAPTER-1 (Basics of Electronic Communication) -12 Marks (2 Marks)

- 1) State the need of Modulation.
- 2) Compare simplex, half duplex and full duplex communication.
- 3) Define Noise and noise figure.
- 4) State the frequency range of the following  
(i) Audio Frequency (ii) IR Frequency (iii) Voice Frequency (iv) High Frequency.

### (4 Marks)

- 5) Draw and explain the block diagram of basic electronics communication system.
- 6) Define Noise and explain different types of noise involved in communication system.
- 7) Draw and explain the Electromagnetic Spectrum.
- 8) Explain Synchronous and Asynchronous Transmission.
- 9) Explain Series and Parallel Transmission modes.

### CHAPTER-2 (Amplitude Modulation Communication) -18 Marks (2-Marks)

- 10) Define- i) Amplitude Modulation ii) Modulation Index of AM wave.
- 11) Draw the time domain and frequency domain representation of AM wave.
- 12) Write the expression for total power in AM, bandwidth, Modulation Index of AM and also write the mathematical expression of AM signal.
- 13) A 10kw carrier is amplitude modulated by two sine waves to a depth of 0.5 & 0.6 respectively. Calculate total power content of modulated carrier.
- 14) State the types of AGC and also state the need of AGC.
- 15) Define AM Demodulation. Draw its input/output waveforms.
- 16) Draw the circuit diagram of Practical diode detector.
- 17) Compare high level and low level modulation for AM.

**(4-Marks)**

- 18) A 10 kw carrier is amplitude modulated of 75% depth of modulation by a modulating signal. Calculate side band power, total power and transmission efficiency of AM wave.
- 19) Draw and explain the block diagram of Super heterodyne receiver with waveforms.
- 20) Draw and explain the working of Diode Detector with waveforms.
- 21) Explain Delayed AGC with circuit diagram and graph.

**CHAPTER-3 (Frequency Modulation Communication) -14 Marks**

**(2-Marks)**

- 22) Write the mathematical expression of FM wave and give the meaning of each term in it.
- 23) Draw the time domain and frequency domain representation of FM wave.
- 24) What is the bandwidth required for FM signal in which the modulating frequency is 2KHz and the maximum deviation is 10 KHz.

**(4-Marks)**

- 25) Define following terms with respect to FM- i) Frequency Modulation ii) Modulation Index iii) Deviation Ratio iv) Frequency deviation
- 26) Compare AM and FM signal with minimum 8 points.
- 27) Frequency modulated signal is represented by the voltage equation  $E(f_m) = 10\sin(6 \cdot 10^8 t + 5\sin 1250t)$  Calculate i) carrier frequency ii) Modulating frequency. iii) Maximum power deviation. iv) What power will this FM wave dissipate in 20 ohm resistor?
- 28) Explain the term Pre-emphasis and De-emphasis with graph.
- 29) Compare Narrowband and Wide band FM.
- 30) Use carson's rule to compare the bandwidth that would be required to transmit a baseband signal with a frequency range from 300Hz to 3KHz using:
  - 1)NBFM with maximum deviation of 5KHz.
  - 2)WBFM with maximum deviation of 75KHz.

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