



Printed Pages : 3

TEC-506

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2058

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--

B. Tech.

(SEM. V) EXAMINATION, 2007-08 COMMUNICATION ENGG.

Time : 3 Hours]

[Total Marks : 100

- Note :
- (1) Attempt *all* questions.
 - (2) All questions carry *equal* marks.
 - (3) Be precise in your answer.
 - (4) No second answer book will be provided.

1. Attempt any **four** parts of the following : 5×4=20

- Define Amplitude modulation, frequency modulation and phase modulation. What is modulation index ?
- Describe noise in communication system. Enlist and describe each type.
- Explain the terms sensitivity, selectivity and image frequency
- A 400W carrier is modulated to depth of 75%. Calculate the total power in the modulated wave.
- What are the losses in fiber optic communication ?
- Define virtual height, critical frequency, maximum usable frequency and skip distance.

2 Attempt any **four** of the following : $5 \times 4 = 20$

- (a) Draw and explain the block diagram of A.M. transmitter for high level transmission.
- (b) The antenna current of an AM transmitter is 8 A when only the carrier is sent, but it increases to 8.93 A when the carrier is modulated by a sine wave. Find percentage modulation. Determine the antenna current when percentage of modulation changes to 0.8.
- (c) Explain the Armstrong method of frequency modulation with the help of a block diagram.
- (d) Explain the phase shift method for suppression of unwanted sideband.
- (e) What is frequency deviation in frequency modulation ? Derive the relation between frequency deviation and modulation index.
- (f) What is the bandwidth required for a FM in which the modulating frequency is 2 kHz and maximum deviation is 10 kHz.

3 Attempt any **two** of the following : $10 \times 2 = 20$

- (a) Draw and explain the process of sampling for a band limited analog signal.
- (b) Explain the Fosterseeley discriminator for frequency demodulation.
- (c) Explain the method for generation and detection of coherent QPSK.

4 Attempt any **two** of the following : $10 \times 2 = 20$

- (a) Explain ionospheric layers and their variation in atmosphere with respect to temperature.
- (b) What is meant by Y, I, Q signals in colour TV and why they are generated ?
- (c) Define the following :
 - (i) Horizontal scanning
 - (ii) Vertical scanning
 - (iii) Interlaced scanning
 - (iv) Blanking and sync. pulses

5 Write short notes on any **four** of the following : $5 \times 4 = 20$

- (a) Noise in frequency modulation
- (b) Pre-emphasis and De-emphasis
- (c) Chrominance and luminance
- (d) Delta modulation
- (e) ISB transmission.