SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | |

Total number of pages:[2]

Total no. of questions - 6

B.Tech. || ECE || 4th Sem

Analog Communication Systems

Subject Code: BTEC-401 (RP)

Paper ID: M/18

(2011-2014 batch)

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**

PART A (10x 2marks)

Q. 1. Short-Answer Questions:

(a) What is the need for modulation?
(b) Define fidelity and selectivity.
(c) What is Nyquist's criterion for prevention of aliasing?
(d) Define image frequency and its rejection ratio?
(e) What is capture effect in FM?
(f) Define modulation index for AM. What do you mean by over-modulation?
(g) Differentiate between low level and high level modulation.
(h) What are FM allocation standards?
(i) List advantages and disadvantages of SSB over AM.
(j) What do you mean by VSB? What are its applications?

PART B (5×8marks)

Q. 2. How can you classify noise? Discuss its types CO1

OR

Explain process of linear mixing for two input signals. Draw the waveforms and frequency spectrum also. CO1

Q. 3. Derive expression for FM wave in time domain. Also draw waveforms and frequency spectrum. CO2

OR

Derive expression for AM wave in time domain and frequency domain. Also draw waveforms and frequency spectrum. CO2

Q. 4. What is balanced modulator? Explain working of FET based balanced modulator. Prove mathematically that balanced modulator suppresses carrier. CO3

OR

What are advantages of super-hetrodyne receiver over TRF receiver? Explain the working of super-hetrodyne receiver with the help of block diagram. CO3

Q. 5. How varactor diode can be used for FM generation. Explain in detail. CO4

OR

Explain working of balanced slope detector. What are its advantages and disadvantages? CO4

Q. 6. a) Explain filter method of SSB generation. CO5

b) Draw and explain circuit for generation and reconstruction of natural-PAM signal. CO6

OR

a) Explain working of coherent single sideband BFO receiver. CO5

b) Explain working of PWM modulator and demodulator CO6