Roll No. .....

National Institute Technology, Delhi

B.Tech (ECE), 4th Semester

Subject: Analog Communication **Time: 1.5** Hrs

Sub Code: ECB-203 **Max. Marks:** 25

Note: Attempt all the questions.

Q.1

(a) Explain the concept of neutralization with an example.

(b) Prove that in AM, maximum average power transmitted by an antenna is 1.5 times the carrier power.

(c) Explain various types of distortions in diode detector.

(d) A transmitter (AM-DSBFC) with a carrier power of 10 W at a frequency of 25 MHz operates into a 50 Ohms load. It is modulated at 60% by a 2 kHz sine wave:
(i) Sketch the signal in frequency domain.
(ii) Determine the total signal power.
(iii) Determine RMS voltage of a signal.

(e) For a receiver with IF and RF frequencies of 455 kHz and 900 kHz respectively, determine
(i) Local oscillator frequency
(ii) Image frequency
(iii) IMRR for a pre-selector Q of 80.

(5*3=15)

Q.2 Draw and explain the working of Super heterodyne receiver with suitable waveforms. Discuss its advantages (5)

Q.3 Explain Phase shift method for generation of SSB signal. (5)

**********BEST WISHES**********