

Code No: 07A4EC11

R07**Set No. 2**

II B.Tech II Semester Examinations, APRIL 2011

ANALOG COMMUNICATIONS

Common to Electronics And Telematics, Electronics And Communication
Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Draw the phasor diagram for Amplitude modulation?
(b) An amplitude modulated signal is given by
 $f_{AM}(t) = 10\cos(2\pi \cdot 10^6 t) + 5\cos(2\pi \cdot 10^6 t)\cos(2\pi \cdot 10^3 t) + 2\cos(2\pi \cdot 10^6 t)\cos(4\pi \cdot 10^3 t)$.
Find the various frequency components present and the corresponding modulation indices. [8+8]
2. How is double sideband suppressed carrier demodulated? [16]
3. (a) How is AM transmitter different from FM transmitter w.r.to feedback.
(b) Explain about variable reactance type FM transmitter.. [8+8]
4. Show that the figure of merit γ for an AM system using synchronous detection is identical to the envelope detector? [16]
5. Briefly describe the principle of operation of different types of FM detectors, clearly bringing out advantages and limitations of each one of them? [16]
6. Explain the generation and detection of VSB signal using filter method? [16]
7. (a) The local oscillator frequency is chosen to be higher than the received carrier frequency by an amount equal to the IF so as to produce a difference frequency equal to the IF. Why is it chosen to be higher and not lower than the received carrier frequency.
(b) For a receiver with IF, RF, and local oscillator frequencies of 455kHz, 1100kHz, and 1555kHz, respectively, determine:
 - i. Image frequency
 - ii. Image frequency rejection ratio for a $Q=50$. [16]
8. Define pulse position modulation Draw the waveform, and explain the operation. [16]

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R07**Set No. 4**

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Engineering

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2. Briefly describe the principle of operation of different types of FM detectors, clearly bringing out advantages and limitations of each one of them? [16]
3. (a) How is AM transmitter different from FM transmitter w.r.to feedback.
(b) Explain about variable reactance type FM transmitter.. [8+8]
4. Define pulse position modulation Draw the waveform, and explain the operation. [16]
5. How is double sideband suppressed carrier demodulated? [16]
6. (a) Draw the phasor diagram for Amplitude modulation?
(b) An amplitude modulated signal is given by
 $f_{AM}(t) = 10\cos(2\pi \cdot 10^6 t) + 5\cos(2\pi \cdot 10^6 t)\cos(2\pi \cdot 10^3 t) + 2\cos(2\pi \cdot 10^6 t)\cos(4\pi \cdot 10^3 t)$.
Find the various frequency components present and the corresponding modulation indices. [8+8]
7. Explain the generation and detection of VSB signal using filter method? [16]
8. (a) The local oscillator frequency is chosen to be higher than the received carrier frequency by an amount equal to the IF so as to produce a difference frequency equal to the IF. Why is it chosen to be higher and not lower than the received carrier frequency.
(b) For a receiver with IF, RF, and local oscillator frequencies of 455kHz, 1100kHz, and 1555kHz, respectively, determine:
 - i. Image frequency
 - ii. Image frequency rejection ratio for a $Q=50$. [16]

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R07**Set No. 1**

II B.Tech II Semester Examinations, APRIL 2011

ANALOG COMMUNICATIONS

Common to Electronics And Telematics, Electronics And Communication
Engineering

Time: 3 hours

Max Marks: 80

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1. Briefly describe the principle of operation of different types of FM detectors, clearly bringing out advantages and limitations of each one of them? [16]
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(b) For a receiver with IF, RF, and local oscillator frequencies of 455kHz, 1100kHz, and 1555kHz, respectively, determine:
 - i. Image frequency
 - ii. Image frequency rejection ratio for a $Q=50$. [16]
8. (a) Draw the phasor diagram for Amplitude modulation?
(b) An amplitude modulated signal is given by

$$f_{AM}(t) = 10\cos(2\pi \cdot 10^6 t) + 5\cos(2\pi \cdot 10^6 t)\cos(2\pi \cdot 10^3 t) + 2\cos(2\pi \cdot 10^6 t)\cos(4\pi \cdot 10^3 t).$$
 Find the various frequency components present and the corresponding modulation indices. [8+8]

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R07**Set No. 3**

II B.Tech II Semester Examinations, APRIL 2011

ANALOG COMMUNICATIONS

Common to Electronics And Telematics, Electronics And Communication
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Time: 3 hours

Max Marks: 80

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1. How is double sideband suppressed carrier demodulated? [16]
2. Show that the figure of merit γ for an AM system using synchronous detection is identical to the envelope detector? [16]
3. Briefly describe the principle of operation of different types of FM detectors, clearly bringing out advantages and limitations of each one of them? [16]
4. (a) How is AM transmitter different from FM transmitter w.r.to feedback.
(b) Explain about variable reactance type FM transmitter. [8+8]
5. (a) Draw the phasor diagram for Amplitude modulation?
(b) An amplitude modulated signal is given by

$$f_{AM}(t) = 10\cos(2\pi \cdot 10^6 t) + 5\cos(2\pi \cdot 10^6 t)\cos(2\pi \cdot 10^3 t) + 2\cos(2\pi \cdot 10^6 t)\cos(4\pi \cdot 10^3 t).$$
 Find the various frequency components present and the corresponding modulation indices. [8+8]
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(b) For a receiver with IF, RF, and local oscillator frequencies of 455kHz, 1100kHz, and 1555kHz, respectively, determine:
 - i. Image frequency
 - ii. Image frequency rejection ratio for a $Q=50$. [16]
7. Define pulse position modulation Draw the waveform, and explain the operation. [16]
8. Explain the generation and detection of VSB signal using filter method? [16]
