Code No: R05220503 **R05** **Set No. 2**

II B.Tech II Semester Examinations,April/May 2012
PRINCIPLES OF COMMUNICATIONS
Common to BME, IT, E.COMP.E, CSE, CSSE

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain Flat-top sampling with circuit. [16]
2. Explain about the effect of the modulation index β on bandwidth. [16]
3. Write short notes on:
   (a) Entropy
   (b) Redundancy
   (c) Hartley-Shannon Law
   (d) Channel capacity. [16]
4. (a) Discuss the following with suitable examples
      i. Hamming codes
      ii. Interlaced codes
   (b) What is meant by Hamming distance (d_{min})? Show that D errors in a received codeword can be detected if D <= $d_{min}-1$. [10+6]
5. A carrier wave of a frequency of 20 kHz is amplitude-modulated by a modulating signal f(t) = cos $2\pi 10^3 t + cos 4\pi 10^3$ t. find the expression for the corresponding SSB-SC signal. [16]
6. (a) Explain μ-law and A-law for compression.
   (b) In what way PCM is different from other analog pulse modulations? What makes it a digital system. [10+6]
7. (a) Explain DPSK modulator and DPSK demodulator with block diagram and differential encoding and decoding tables.
   (b) Distinguish between ASK and PSK modulation systems. [12+4]
8. (a) State and prove the frequency convolution theorem.
   (b) If x(t) = A Sinc($2\omega t$), use Duality and find X(f). [8+8]

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Code No: R05220503 **R05** **Set No. 4**

II B.Tech II Semester Examinations,April/May 2012
PRINCIPLES OF COMMUNICATIONS
Common to BME, IT, E.COMP.E, CSE, CSSE

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) State and prove the frequency convolution theorem.
   (b) If x(t) = A Sinc($2\omega t$), use Duality and find X(f). [8+8]

2. (a) Discuss the following with suitable examples
      i. Hamming codes
      ii. Interlaced codes
   (b) What is meant by Hamming distance (d_{min})? Show that D errors in a received codeword can be detected if D <= $d_{min}-1$. [10+6]

3. (a) Explain μ-law and A-law for compression.
   (b) In what way PCM is different from other analog pulse modulations? What makes it a digital system. [10+6]

4. Explain about the effect of the modulation index β on bandwidth. [16]

5. A carrier wave of a frequency of 20 kHz is amplitude-modulated by a modulating signal f(t) = cos $2\pi 10^3 t + cos 4\pi 10^3$ t. find the expression for the corresponding SSB-SC signal. [16]

6. (a) Explain DPSK modulator and DPSK demodulator with block diagram and differential encoding and decoding tables.
   (b) Distinguish between ASK and PSK modulation systems. [12+4]

7. Write short notes on:
   (a) Entropy
   (b) Redundancy
   (c) Hartley-Shannon Law
   (d) Channel capacity. [16]

8. Explain Flat-top sampling with circuit. [16]

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Code No: R05220503 **R05** **Set No. 1**

II B.Tech II Semester Examinations,April/May 2012
PRINCIPLES OF COMMUNICATIONS
Common to BME, IT, E.COMP.E, CSE, CSSE

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Write short notes on:
   (a) Entropy
   (b) Redundancy
   (c) Hartley-Shannon Law
   (d) Channel capacity. [16]

2. A carrier wave of a frequency of 20 kHz is amplitude-modulated by a modulating signal f(t) = cos $2\pi 10^3 t + cos 4\pi 10^3$ t. find the expression for the corresponding SSB-SC signal. [16]

3. (a) Explain μ-law and A-law for compression.
   (b) In what way PCM is different from other analog pulse modulations? What makes it a digital system. [10+6]

4. (a) Discuss the following with suitable examples
      i. Hamming codes
      ii. Interlaced codes
   (b) What is meant by Hamming distance (d_{min})? Show that D errors in a received codeword can be detected if D <= $d_{min}-1$. [10+6]

5. Explain about the effect of the modulation index β on bandwidth. [16]

6. (a) State and prove the frequency convolution theorem.
   (b) If x(t) = A Sinc($2\omega t$), use Duality and find X(f). [8+8]

7. Explain Flat-top sampling with circuit. [16]

8. (a) Explain DPSK modulator and DPSK demodulator with block diagram and differential encoding and decoding tables.
   (b) Distinguish between ASK and PSK modulation systems. [12+4]

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Code No: R05220503 **R05** **Set No. 3**

II B.Tech II Semester Examinations,April/May 2012
PRINCIPLES OF COMMUNICATIONS
Common to BME, IT, E.COMP.E, CSE, CSSE

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. A carrier wave of a frequency of 20 kHz is amplitude-modulated by a modulating signal f(t) = cos $2\pi 10^3 t + cos 4\pi 10^3$ t. find the expression for the corresponding SSB-SC signal. [16]

2. Explain Flat-top sampling with circuit. [16]

3. (a) Discuss the following with suitable examples
   i. Hamming codes
   ii. Interlaced codes
   (b) What is meant by Hamming distance (d_{min})? Show that D errors in a received codeword can be detected if D <= $d_{min}-1$. [10+6]

4. (a) Explain DPSK modulator and DPSK demodulator with block diagram and differential encoding and decoding tables.
   (b) Distinguish between ASK and PSK modulation systems. [12+4]

5. (a) State and prove the frequency convolution theorem.
   (b) If x(t) = A Sinc($2\omega t$), use Duality and find X(f). [8+8]

6. Write short notes on:
   (a) Entropy
   (b) Redundancy
   (c) Hartley-Shannon Law
   (d) Channel capacity. [16]

7. Explain about the effect of the modulation index β on bandwidth. [16]

8. (a) Explain μ-law and A-law for compression.
   (b) In what way PCM is different from other analog pulse modulations? What makes it a digital system. [10+6]

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