

SE/SEM-IV/CBS/IT/NOV-DEC-16

SUB:- PADC

02/12/2016

Q.P. Code : 552200

EXTRA

(3 Hours)

[ Total Marks : 80]

- Note: 1) Question No.1 is compulsory.  
2) Out of remaining attempt any three.  
3) Assume & mention suitable data wherever required.  
4) Figures to right indicates full marks.

1. Attempt any four from the following. 20
  - (a) An amplifier has a bandwidth of 4 MHz with 10 K as the input resistor. Calculate the rms noise voltage at the input to this amplifier, if the room temperature is 25°C.
  - (b) Explain Eye pattern with neat diagram.
  - (c) Explain Quantization.
  - (d) State and prove the differentiation in time domain property of the Fourier Transform.
  - (e) What is diagonal clipping and explain how it can be avoided.
2. a) The AM Transmitter develops an unmodulated power of 400 Watts across a 50 ohms resistive load. The carrier is modulated by a sinusoidal signal with a modulation index of 0.8. Assuming  $f_m = 5\text{KHz}$  and  $f_c = 1\text{MHz}$ . 10
  - (i) Obtain the value of carrier amplitude  $V_c$  and hence write the expression for AM signal.
  - (ii) Find the total sideband power.
  - (iii) Draw the AM wave for the given modulation index.  
  - (b) Explain any one generation method of SSBSC AM. 10
3. a) Derive the mathematical expression for FM. 10  
b) Explain Foster seeley discriminator with neat block diagram and compare the performance with Ratio detector. 10
4. a) State and prove Sampling theorem and explain the aliasing error. 10  
b) Explain generation and demodulation of PPM. 10
5. a) Explain the Delta modulator Transmitter and receiver with neat block diagrams. 10  
b) The binary data 11010101 is transmitted over a baseband channel. Draw the waveform for transmitted data using the following data formats. 10
  - (i) Unipolar NRZ (ii) Unipolar RZ (iii) Bipolar RZ (iv) Split phase Manchester
  - (v) Polar quaternary NRZ.

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2

6. Answer any four

20

- (a) Explain wired communication channel.
  - (b) Derive Friis formula.
  - (c) Explain QPSK.
  - (d) Compare TDM and FDM.
  - (e) Explain BFSK Transmitter.
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