Q. P. Code: 35136

Time: 3 hours   Total Marks : 80

N.B. (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.

Q1   Write any **four** of the following   20

   a) Explain pre-emphasis & de-emphasis
   b) Explain shot noise & transit time noise in brief
   c) State drawbacks of delta modulation system & how it is removed
   d) Explain principles of Sky wave propagation in brief.
   e) State and prove differentiation property in time domain of Fourier transform

Q2

a) Explain PWM generation & degeneration method in detail   10

b) Explain PCM Encoder & PCM decoder with block diagram   10

Q3

a) a sinusoidal carrier has an amplitude of 10 V & a frequency of 100 KHz. It is amplitude

   Modulated by a sinusoidal voltage of amplitude 3V & a frequency of 500 Hz. Modulated

   Voltage is developed across 75 Ω.

      (i)   Write the equation of modulated wave
      (ii)   Determine modulation index
      (iii)   Calculate total average power
      (iv)   Power carried by sidebands
      (v)   Spectrum of modulated wave   10

b) Explain in detail indirect method of generation of FM with suitable diagram   10

Q4

a)   What is multiplexing in communication system? Draw and explain transmitter and

     Receiver of FDM   10

b) Explain with reference to AM receiver (i) fidelity (ii) selectivity (iii) sensitivity

        iv) Image frequency and its rejection. (v) Double spotting   10

Page 1 of 2

Q5

a) Draw the ASK, FSK & PSK waveforms for digital data   **11010011**   06

b) What do you mean by inter symbol interference & how it is avoided   08

c) What do you mean international standards for communication system?

How frequencies are allocated?   06

Q6   Write short notes on (**any four**)   20

  a) friss formula b) sampling theorem   c) line codes d) types of communication channel

   e) Space wave propagation

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