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

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