SEM | III | CBCS | IT | POC | Dec'17 19/12/17

Q.P. Code: 24574

Time: 3 Hours **Marks: 80**

N.B (1) Question No. 1 is compulsory

(2) Out of remaining questions attempt three

(3) Figures to right indicate full marks.

Q1 Solve any **four**

a) Compare ground wave & sky wave propagation (5)
b) Define modulation & explain any two need of modulation (5)
c) State in brief different types of noise. (5)
d) With reference to receiver define sensitivity, selectivity, fidelity and image frequency rejection (5)
e) Draw BASK & BFSK signal for 10111010. (5)

Q2 a) Explain with neat diagram Indirect method of FM generation (10)

b) Prove Friss formula with reference to noise factor in cascade. (10)

Q3 a) What is multiplexing in communication system? Explain in brief transmitter and receiver of FDM. (10)

b) A sinusoidal carrier has an amplitude of 20 V & frequency of 200 Khz. It is amplitude modulated by a sinusoidal voltage of amplitude 6 V & frequency 1 Khz. Modulated voltage is developed across a 80 Ω resistance 1. Write the equation of modulated wave 2. Determine modulation index 3. Draw the spectrum of modulated wave & 4. Calculate total average power. (10)

Q4 a) Explain generation & demodulation of PWM. (8)

b) In an AM receiver the loaded Q of antenna circuit at the input to mixer is 100. Calculate image frequency & its rejection at 1 MHz. (8)

c) State in brief different types of communication channel (4)

Q5 a) Explain delta modulator transmitter & receiver with neat block diagram (10)

b) State & prove following properties of Fourier transform.

(i) Time shifting (ii) convolution in time domain (10)

Q6 Write short notes (**Any Four**) (20)

1. Sampling theorem
2. Frequency spectrum allocation
3. Tropospheric scatter propagation
4. Inter symbol interference
5. Noise figure & noise factor