(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 from the following **(20)**

a) Compare PCM & DELTA modulation
b) Different types of communication channel
c) State advantages & disadvantages of ground wave propagation
d) Explain in brief noise triangle in FM
e) What do you mean by alising .how it can be avoided

Q2. A) Binary data 11010101 is transmitted over a baseband channel.

Draw the waveform for transmitted data using following format **(10)**

a) Unipolar NRZ (b) unipolar RZ (c) Bipolar RZ (d)split phase Manchester

(e) Polar Quaternary NRZ.

B) Explain generation & demodulation of PPM **(10)**

Q3. (A) Explain Foster Seeley discriminator with neat diagram. **(10)**

(B) Explain following noise parameter

a) Noise figure b) Noise factor c) Noise temperature d) S/N ratio **(6)**

(C) What is the role of antialiasing filter in sampling **(4)**

Q4. (A) Draw the block diagram of analog & digital communication system & explain each block in it in brief. **(10)**

(B) What are the limitations of TRF receiver .How these are avoided in Super heterodyne receiver. **(10)**

Q5. (a) With reference to sky wave propagation explain the following term

(i)Virtual height (ii) MUF (III) skip distance (iv) skip distance **(10)**

(b) State & explain sampling theorem for low pass band limited signal **(6)**

(c) Write Fourier transform of unit step, Delta & Gate function **(4)**

Q6 a) compare DSB-FC, DSB-SC &SSB. & hence calculate total power in following Forms of AM. I) DSB-FC & SSB-SC where A 400 W carrier is modulated to Depth of 75 %. **(10)**

b) Compare ASK, FSK & PSK **(6)**

c) Explain in brief Inter symbol interference. **(4)**
