Q.P. Code : 18454

[Time: Three Hours] **[Marks:80]**

Please check whether you have got the right question paper.

N.B: 1) Questions No.1 is compulsory.
2) Attempt any three questions from the remaining five questions.
3) Assume suitable data if required.

Q. 1 Answer the following. **(20)**

a) Compare AM and FM.
b) State and explain sampling theorem.
c) Comment on noise immunity of frequency
d) Explain sources of noise

Q. 2 a) Explain in detail generation and detection of PWM **(10)**
b) What is multiplexing? Why it is needed? Explain in detail **(10)**

Q. 3 a) Describe Armstrong method of FM generation with the help of a neat block diagram and phasor diagram. **(10)**
b) The maximum deviation allowed in an FM broadcast system is 75 KHz. if the signal of 20KHz, find the band width of FM signal using Carson's rule. What will be the change in band width if modulating signal frequency is doubled? Determine the bandwidth when modulating signal amplitude is doubled. **(10)**

Q. 4 a) Explain coherent detection of DSB-SC. **(10)**
b) Explain Envelope detector in detail and comment on IF frequency of superhetrodyne receiver. **(10)**

Q. 5 a) "In PCM SNR can be controlled by transmission bandwidth" Justify, compare PCM and Delta Modulation. **(10)**
b) Define the following propagation terms:- **(10)**
i) Critical frequency and critical Angle ii) Virtual Height.
iii) MUF iv) Skip Distance and skip Zone v) Free space path loss.

Q. 6 Write short notes on **any three.** **(10)**

a) Fedility and double spotting of Radio receiver.
b) Quantization Process.
c) Adaptive delta modulation (ADM).
d) ISB transmission.
