S.B. Roll No……

PRINCIPLES OF COMMUNICATION ENGINEERING
3rd/ECE/ECE(II)/0615/0261/May'16

Duration: 3 Hrs **M. Marks=75**

SECTION A

Q1.Fill in the blanks. **1x15=15**

a. The audio frequency ranges from …….. to …… .
b. A balanced modulator produces …… signal.
c. Carson's rule states that……..
d. The modulation index in wideband FM is …….. .
e. VSB is used in ……..
f. Maximum power of carrier signal in AM signal can be …….
g. Pre-amphasis circuit is used to ……. .
h. DPCM stands for ……..
i. Quantization error can be reduced by …….
j. Companding is used in …….
k. Noise immunity of PM is …….. than AM, and …….. than FM.
l. VCO is used for …….. .
m. Sensitivity of radio receiver is …….
n. Foster seelay discriminator is used for …….
o. In sampling theorem, the Nyquist interval is given by ……

SECTION B

Q2.Attempt any SIX **5x6=30**

a. Explain the need of modulation in communication system.
b. Write a note on pre-emphasis and de-emphasis?
c. Explain the working of balanced modulator.
d. What do you understand by image frequency?
e. What do you understand by phase locked loop FM demodulator?
f. Explain delta modulation.
g. Explain sampling theorem.
h. Discuss the block diagram of superheterodyne receiver.

SECTION C

Q3. Attempt any THREE **10x3=30**

a. What is amplitude modulation? Derive the expression for amplitude modulated wave?
b. Draw block diagram of PCM system and explain the function of each block in detail.
c. Explain Armstrong method for FM generation.
d. Write short note on any **Two**:
  (i) CDMA
  (ii) TDMA
  (iii) VCO