B.TECH. SEM -IV ELECTRONICS 2014 COURSE (CBCS) : SUMMER - 2018

SUBJECT: ANALOG COMMUNICATION

Day : **Saturday** **S-2018-2294** Time **10.00 AM TO 01.00 PM**
Date : **09/06/2018** Max Marks.:60

N.B.

1) All Questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Neat diagram must be drawn **WHEREVER** necessary.
4) Assume suitable data if necessary.

Q.1 **a)** Discuss Need of Modulation in detail. **(06)**

b) Describe role of Transmitter in Communication System. **(04)**

OR

a) Discuss coaxial cables and Fiber optics cables in detail. **(06)**

b) Describe ground wave propagation technique. **(04)**

Q.2 **a)** List various sources of Noise. Discuss types of Internal Noise in detail. **(06)**

b) Calculate noise voltage at input of receiver of RF amplifier using a device that has 100Ω equivalent noise temperature and 200Ω input resistance bandwidth of Amplifire is 1MHz at 25° C. ($K=1.38X10^{-23}$ J/K) **(04)**

OR

a) Discuss following terms: **(06)**

i) Signal to Noise Ratio
ii) Noise factor
iii) Noise Figure

b) Discuss Natural Noise sources in short. **(04)**

Q.3 **a)** Define Amplitude Modulation with waveforms. Discuss over modulation and under Modulation. **(06)**

b) Discuss the bandwidth requirement for AM signal. Draw spectrum of AM Wave. **(04)**

OR

a) Discuss filter method required for the generation of single sideband signal with the help of block diagram. **(06)**

b) Draw and explain simple diode detector circuit. **(04)**

Q.4 **a)** Describe following terms of FM wave: **(06)**

i) Frequency Deviation
ii) Modulation Index
iii) Deviation ratio

b) Draw and discuss frequency spectrum of FM wave **(04)**

OR

a) Discuss Pre-emphasis and De-emphasis in detail with graph. **(06)**

b) Describe the concept of Noise Tringle. **(04)**

Q.5 **a)** Discuss the following terms: **(06)**

i) Sensitivity
ii) Selectivity
iii) Fidelity

b) Describe simple AGC system with graph. **(04)**

OR

Draw and discuss single sideband receiver. **(10)**

Q.6 Define sampling theorem and discuss Natural and Flat-Top sampling Techniques. What is Aliasing error? **(10)**

OR

a) Describe generation and detection method of PWM signal. **(06)**

b) Discuss frequency Division Multiplexing in short. **(04)**

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