B.TECH SEM - IV (2007 COURSE) (E & TC ENGG.) :
WINTER - 2017
SUBJECT: ANALOG COMMUNICATION

Day: Tuesday **Time:** 02.30 PM TO 05.30 PM
Date: 21/11/2017 **W-2017-2440** **Max. Marks: 80**

N.B:

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY.** Out of remaining questions attempt **ANY TWO** questions from each section.
2) Figures to the right indicate **FULL** marks.
3) Answer to both sections should be written in the **SEPARATE** answer book.
4) Draw neat and labeled diagram **WHEREVER** necessary.
5) Assume suitable data if necessary.

SECTION-I

Q.1 **a)** What is modulation? Explain need of modulation in detail. **(06)**
b) What are the advantages of SSB-SC over DSB-SC system? **(04)**
c) Compare FDM and TDM. **(04)**

Q.2 **a)** Explain in detail block schematic of basic communication system. **(07)**
b) Write short notes on **(06)**
i) Co-axial cables ii) Waveguides iii) Optical fiber cables

Q.3 **a)** How Amplitude modulated (AM) wave generated by high level collector modulation method? **(07)**
b) Write detailed note on VSB transmission. **(06)**

Q.4 **a)** How Frequency Modulated (FM) wave is generated using direct method of FM generation? **(07)**
b) In FM system, the audio frequency is 1 KHz and audio voltage is 2 volts. The deviation is 4 KHz. If the AF voltage is now increased to 8 volts and its frequency dropped to 500 Hz. Find modulation index in each case and corresponding bandwidth using Carson's rule. **(06)**

SECTION-II

Q.5 **a)** What are the types of noise? Explain in detail **(06)**
b) Write short note on Diversity reception. **(04)**
c) Explain the terms. **(04)**
i) Sensitivity ii) Selectivity

Q.6 **a)** Derive expression for noise figure. **(07)**
b) Noise output of a resistor is amplified by noiseless amplifier having gain of 60 and bandwidth of 20 KHZ. A meter connected to the output of amplifier reads 1mv rms. **(06)**
i) The Bandwidth of amplifier is reduced to 5KHZ its gain remaining constant. What does meter read now?
ii) If the resistor is operated at 80^0c, what is its resistance?

Q.7 **a)** Draw and explain foster-seelay discriminator. **(07)**
b) Draw and explain practical diode detector circuit. **(06)**

Q.8 **a)** What is ground wave propagation explain in detail. **(07)**
b) Write short note on Dipole Antenna. **(06)**

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