PVP 14

Code: EC4T5

II B.Tech - II Semester – Regular/Supplementary Examinations
October - 2020

ANALOG COMMUNICATIONS
(ELECTRONICS & COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11 x 2 = 22M

1.

a) Explain the need of modulation in communication system.
b) A carrier signal c(t) = 5 Cos $2\pi \times 10^6$t is modulated by a message signal m(t) = 4 Cos $8\pi \times 10^3$t to generate an AM signal. Calculate bandwidth and power.
c) What are the advantages of SSB systems and list applications of SSB.
d) Compare different AM techniques.
e) Draw the frequency domain representation of VSB modulated wave.
f) Define modulation index for FM.
g) Specify the equations for FM & PM waves.
h) Give the classification of radio receivers.
i) A super heterodyne receiver having RF amplifier is tuned to 555 kHz .The local oscillator is adjusted to 1010 kHz. Then calculate the IF and image frequency.

j) What is the advantage of PPM over PWM and PAM?

k) Compare TDM and FDM.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Describe AM wave by considering single tone modulating signal, Draw its frequency domain representations and calculate power and bandwidth. 8 M

b) Explain the method of AM Demodulation using square law detector. 8 M

3. a) With a neat diagram, explain how SSB wave is generated using phase discrimination method with only USB and rejecting the LSB. 8 M

b) What is the effect of frequency and phase error in demodulation of DSB-SC wave using synchronous detector. 8 M

4. a) Compare the direct and indirect methods of generating FM signals. Explain Armstrong method of generating FM signals with a neat block schematic diagram. 8 M

b) Explain the demodulation of FM using balanced slope detector. 8 M

5. a) Draw the block diagram of a super heterodyne receiver and explain its operation. What are the advantages of this receiver? 8 M

b) Draw the block diagram of FM receiver and explain each block in detail. 8 M

6. a) Explain PPM generation and detection with a neat block diagram. 8 M

b) What is Multiplexing? What are the advantages of Multiplexing? Explain how do you generate Time Division Multiplexing (TDM) signals. 8 M