D 90275

(Pages : 2)

SEVENTH SEMESTER B.TECH. [ENGINEERING] (09 SCHEME) DEGREE EXAMINATION, NOVEMBER 2015

EE/PTEE 09 702—ANALOG AND DIGITAL COMMUNICATION

Time : Three Hours

Maximum : 70 Marks

Part A

Answer **all** *questions.*

1. What is Need for modulation ?

2. What are the advantages of superhetrodyne receiver ?

3. State Sampling theorem.

4. What is CDMA ?

5. What are the applications of power line carrier communication ?

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

6. Differentiate between narrow band and wideband FM.

7. Distinguish between FM and PM by giving its mathematical equations.

8. Draw PWM and PPM waveforms.

9. Differentiate ASK and FSK.

10. Enumerate the advantages and disadvantages of FSK over PSK system.

11. Explain about types of couplings.

(4 × 5 = 20 marks)

Part C

12. (a) What is the principle of Amplitude modulation ? Derive expression for the AM wave and draw its spectrum.

(10 marks)

Or

(b) In an AM modulator, 500 kHz carrier of amplitude 20 V is modulated by 10 kHz modulating signal which causes a change in the output wave of 77.5 V. Determine :

(1) Upper and lower side band frequencies.

(2) Modulation Index.

(3) Peak amplitude of upper and lower side frequency.

(4) Maximum and minimum amplitudes of envelope.

(10 marks)

Turn over

13. (a) State and prove Sampling theorem. (10 marks)

Or

(b) Write short note on the following :

    (i) Properties of Gaussian Random Process. (5 marks)

    (ii) White noise. (5 marks)

14. (a) Describe in detail the PCM technique with focus on its sampling rate, and signal to quantization Noise ratio.

(10 marks)

Or

(b) Explain the coherent binary FSK system with a neat diagram of transmitter and receiver.

(10 marks)

15. (a) Discuss the broad band power line communication with diagrams. (10 marks)

Or

(b) State the purpose of power line communications. (2 marks)

(c) Describe about the power line modems. (8 marks)

[4 × 10 = 40 marks]