Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (ECE/Electronics Engg) (2012 to 2017) (Sem.–4)

ANALOG COMMUNICATION SYSTEMS

Subject Code : BTEC-401

M.Code : 57593

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1. Derive the formula of total Current in AM system.
2. Draw Frequency spectrum of AM modulated wave and label it properly.
3. Define the term Frequency Deviation and percent modulation in FM wave.
4. What is FM capture effect?
5. Write the basic difference between high level and low level AM modulation.
6. What is vestigial side band modulation?
7. What do you mean by tracking and alignment in superheterodyne receiver?
8. What is pulse position modulation?
9. What is the need of pre-emphasis and de-emphasis circuits in FM?
10. Define Energy and power of a signal.

SECTION-B

11. Define the terms Noise figure and Noise equivalent temperature and determine the receiver noise figure in dB and its equivalent noise temperature. Receiver is connected to antenna whose resistance is 50Ω. The equivalent noise resistance of the receiver is 30Ω.

12. Explain Armstrong method of FM generation.

13. Draw basic circuit of square law diode detector and explain it with characteristics.

14. Give comparison of SSB transmission and conventional AM.

15. How PWM and PPM signals are generated in pulse modulation transmission.

SECTION-C

16. Give comparison of PAM, PPM and PWM pulse modulation techniques.

17. How many side bands are there in FM, draw its spectrum? If FM wave is given by the equation $s(t) = 20\sin(6 * 1010^{8}t + 7sin1250t)$, determine carrier frequency, modulating frequency, modulation index, maximum deviation and power dissipated by this FM wave in 100Ω resistor.

18. Explain the following :

    a. Filter method of single side band generation.

    b. Image frequency rejection.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.