



Reg. No. :

Name :

Third Semester B.Tech. Degree Examination, November 2014
(2013 Scheme)

13.304 : ANALOG COMMUNICATION (T)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** marks.

1. Define Amplitude modulation.
2. Define the bandwidth of an amplitude wave.
3. What is meant by over modulation ?
4. Define Sensitivity and Selectivity of a radio receiver.
5. What are the functions of AGC ?
6. Define the term Noise Figure.
7. Draw the typical frequency spectrum of FM wave.
8. Define Carson's rule.
9. What is companding ?
10. What is the purpose of dial tone ? (10×2=20 Marks)

PART – B

Answer **any one** question from **each** Module. **Each full** question carries **20** marks.

Module – I

11. a) Derive the power relations in AM wave. 6
- b) With a neat diagram explain the filter method for SSB generation. 8
- c) An audio signal $10 \sin 25.13 \times 10^3 t$ is amplitude modulated by a carrier $50 \sin 1884.96 \times 10^3 t$. What are the frequencies in the spectrum, modulation factor and percentage of modulation ? 6



12. a) With neat diagrams derive AM wave equation. 8
- b) An AM wave has a total transmitted power of 5kW when modulated at 90% ?
What is the power in SSB wave if it have the same power as in the two side
bands ? 6
- c) Write down the advantages of SSBSC over DSBSC. 6

Module – II

13. a) Draw the block diagram of a SH receiver and explain each block. 10
- b) Derive the equation for Signal to Noise ratio of DSBFC and obtain the figure of
merit. 10
14. a) Why the Local Oscillator frequency of a SH receiver is always kept higher
than the incoming signal frequency ? 7
- b) What are the functions of AGC ? Explain. 7
- c) Explain the term image frequency and image frequency rejection. 6

Module – III

15. a) Write down the advantages and disadvantages of FM over AM. 6
- b) With a neat diagram explain the working of Foster-Sealy discriminator circuit. 9
- c) Define and explain the modulation index of FM. 5
16. a) Draw the circuit of a reactance modulator circuit and explain its working. 9
- b) What is a slope detector ? 5
- c) Derive the expression of FM wave. 6

Module – IV

17. a) Write a note on dual tone multi frequency. 6
- b) Draw the diagram of a telephone set and explain. 9
- c) What are the advantages of PPM over PWM ? 5
18. a) State and prove sampling theorem. 8
- b) Explain the basic purpose of call progress tones and signals. 5
- c) With 4 schematic explain the principle of Local Central Office Exchange. 7
-