



Reg. No. :

Name :

**Fourth Semester B.Tech. Degree Examination, May 2013
(2008 Scheme)**

**Branch : Electronics and Communication
08.406 : ANALOG COMMUNICATION (T)**

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. Define modulation index and spatter in the case of AM.
2. Show that information content of the signal represent only one third of AM wave power at full modulation.
3. Explain flywheel effect of the tuned circuit.
4. Why and where is SSB transmission used ?
5. Distinguish between narrow band FM and ideal FM.
6. What are guard bands ? Why are they used for ?
7. Define preemphasis. Explain its process.
8. Show that narrowband FM offers no improvement in SNR over AM.
9. What is meant by DTMF ? Explain.
10. Explain the purpose of the induction coil in a telephone station set.



(10×4=40 Marks)

PART – B

Answer **any two** questions from **each** Module.

Module – I

11. An SSB transmission contains 10 kW. This transmission is replaced by the standard AM signal with the same power content. Find the power content of the carrier and each of the sidebands when the percent modulation is 80%.



12. Draw a block diagram of an ISB receiver. Briefly describe its operation.
13. a) Draw the block diagram of a simplified filter-type SSB transmitter and explain.
b) Define sensitivity of a receiver. How is it determined ?

Module – II

14. Consider an angle modulated signal $x(t) = 10 \cos (\omega_c t + 3 \sin \omega_m t)$. Assume PM and $f_m = 1$ KHz. Calculate the modulation index and find the bandwidth when
(a) f_m is doubled and (b) f_m is decreased by one-half.
15. a) How does limiting action take place in ratio detector ?
b) Why is amplitude limiter circuit is required in Foster-Seely discriminator ?
16. Describe FM stereo system and mono system.

Module – III

17. Describe a method for noise figure determination for cascade stages of a multistage amplifier.
18. Draw the block diagram of a telephone set employing rotary dialer and explain the operation.
19. It is given the threshold level for AM is equivalent to the input SNR = 10. This is valid also for FM. (a) find SNR output at the threshold level for FM (assume sinusoidal modulation) (b) find modulation index that produces SNR output = 30 dB at the threshold.

(6×10=60 Marks)