Roll Number	

B.E/B.TECH (Full time) DEGREE END SEMESTER EXAMINATIONS April/May 2014

Electronics and Communication Engineering

Fourth semester

EC9253 Communication Systems

(REGULATION 2008)

Time: 3 Hour Max. Mark:100

Answer ALL Questions

Part-A(10X 2 =20 Marks)

1. Define modulation index for AM and FM.
2. What are the effects of modulation index on the total power ant the bandwidth in AM and FM?
3. Define White noise.
4. What is the difference between mixer and frequency multiplier?
5. Define sampling theorem.
6. What is slope overload error?
7. What is the impulse response of matched filter?
8. What is the difference between coherent and non-coherent receiver?
9. How do you represent narrow band noise?
10. What is threshold effect?

Part-B (5X 16 =80 Marks)

11. (i) Derive noise figure of a combined system when n stages are cascaded in series? (6)
(ii) Discuss the different types of noise sources (5)
(iii) Draw the superheterodyne receiver and explain the function of each block. (6)

12. a i)Derive the equation for AM wave and plot AM wave for a single frequency with 50% modulation? (8)
ii)Draw the envelope detector and its operation ? (8)

(or)

b i)Derive the equation of an FM modulation. (8)
b ii) How do you demodulate FM signal? (8)

13 a i) What are the two types of non-uniform quantization? Discuss in detail. (6)

a ii) Draw the block diagram of PCM and explain? (10)

(or)

b i)What is TDM and FDM? Explain. (6)

b ii)Draw the block diagram of delta modulation and explain each block. (10)

14a i)Draw the block diagram of a correlation receiver and explain. (8)

ii)How do you generate QPSK signal and demodulate it? (8)

(or)

b i) How do you generate and demodulate BFSK signal? (8)

ii) What is maximum likelihood receiver? Explain. (8)

15 a i) What is the $(S/N)_i/(S/N)_o$ for AM system. (10)

ii) Why do you need pre-emphasis and de-emphasis? Explain. (6)

(or)

b i) Derive the $(S/N)_i$ / $(S/N)_o$ for FM system. (16)