Register No: …….

M.E DEGREE EXAMINATIONS: JUNE 2011

Second Semester

COMUNICATION SYSTEMS

COM507: Digital Communication Receivers

Time: Three Hrs **Maximum Marks: 100**

Answer all Questions:-

PART A (10 x 2 = 20 Marks)

1. What are bandwidth efficient modulation schemes?
2. Sketch the constellation diagram for 16 QAM.
3. Sketch the impulse response of a matched filter at the receiver for a transmitted signal s(t)=u(t)-u(t-9).
4. What is CPM? How does it differ from QAM?
5. State the need for diversity techniques in wireless communication receivers?
6. Define the terms Doppler shift and Coherence Bandwidth.
7. What is symbol synchronization?
8. Give an example for non decision directed timing.
9. What are eye patterns?
10. What is the need for equalization? Mention any two types of equalization techniques.

PART B (5 x16 = 80 Marks)

11. a) Derive the power spectral density for linearly modulated signals.

(OR)

b) Explain the generation and demodulation of MSK.

12. a) Explain the demodulation of M-ary FSK signals using envelope detectors.

(OR)

b) Derive an expression for the transfer function of a matched filter.

13. a) Explain the principle of operation of RAKE receiver

(OR)

b) Derive an expression for the impulse response of a multipath fading channel.

14. a) Discuss about the principle of Carrier phase synchronization.

(OR)

b) Explain how timing estimation can be achieved using Maximum likelihood principle.

15. a) (i) With a block diagram explain the principle of adaptive equalization. (8)

(ii) Explain LMS algorithm in detail. (8)

(OR)

b) (i) Explain the operation of an echo canceller with a neat sketch. (8)

(ii) Explain stochastic gradient algorithm. (8)

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