

2008-COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

B.TECH IV SEMESTER MODEL EXAMINATION

ANALOG COMMUNICATION

(ELECTRONICS AND COMMUNICATION ENGINEERING)

TIME-3HOUR
MARKS-100

APRIL 2008

ANSWER ALL QUESTIONS

SECTION A [8*5=40]

1. a) Define modulation. What are the needs for modulation?
- b) Explain any 1 method for SSB generation .
- c) What are the advantages & dis advantages of FM over AM .
- d) Explain the principle of FM generation .Draw & explain a direct FM generator ckt.
- e) Define thermal agitation noise. An RF amplifier operating at 17 degree celsius has 200 ohm equivalent noise resistance & 300 i/p resistor. Calculate the rms noise voltage at the i/p to this amplifier. The band width of this amplifier is 6 MHz.
- f) Define 'selectivity' & 'sensitivity' with regard to a receiver.
- g) Explain Pulse signaling & DTMF signaling used to telephony.
- h) Explain the terms "grade of service" & blocking – probability in telephony.

SECTION B [4*15=60]

2. a) Draw an AM wave with regard to a sinusoidal i/p signal & derive the expression for modulation index 'm' from an AM wave diagram.
 - b) Derive the mathematical expression for an AM wave & draw its frequency spectrum. Discuss about band width required for AM.
- OR
3. a) Explain the working of a super heterodyne receiver with the help of a block diagram.
 - b) What is the principle of a double super heterodyne receiver? Discuss its advantages.
4. a) Explain the indirect method for FM generation with relevant diagrams.
 - b) Discuss about band width requirement of an FM system
- OR
5. Explain the principle of a slope detector . Explain a balanced slope detector with ckt & necessary diagrams.
 6. Explain in detail , various types of noises that are affected upon a receiver.
- OR
7. a) Define (i) SNR
 - (ii) Noise factor & noise figure
 - (iii) Effective noise temperature

b) Define AGC in a receiver. Discuss how it affects the performance of a receiver. Compare simple AGC & delayed AGC.

8. a) Explain the mechanism of a Strowger Switch with neat diagram. Compare b/w a “uniselector” & a “two motion selector” .

OR

9. a) Define the terms “busy hour”, BHCA & “CCR” with regard to telephone traffic engineering.

b) An exchange serves 2000 subscribers. If avg BHCA is 10,000 & CCR is 60%, calculate busy hour calling rate.

c) Write short notes on “Time Division Switching”

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