Register Number.....

B.E. DEGREE EXAMINATIONS: APRIL / MAY 2010

Fifth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U07EC509: Communication Engineering

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. An FM signal is broadcast in 88 - 108 MHz band having a carrier swing of 125KHz. The modulation index is

   (A) 100% (B) 83% (C) 67% (D) 50%

2. The saving of power in a DSB-SC systems modulated to 80% is

   (A) 60% (B) 80% (C) 75.76% (D) 50%

3. Ionospheric sounding is used to determine

   (A) Critical frequency (B) Virtual Height

   (C) Maximum Usable frequency (D) Path loss

4. For a transmission line with incident voltage of 5V and reflected voltage of 3V, the reflection coefficient is

   (A) 0.6 (B) 1 (C) 0.8 (D) 0.5

5. The bandwidth of 8-PSK operating with an information bit rate of 24Kbps is

   (A) 8000 Hz (B) 24000Hz (C) 12000hz (D) 16000Hz

6. The peak frequency deviation of a BFSK signal with a mark frequency of 49KHz, space frequency 51KHz and input bit rate of 2Kbps is

   (A) 1 KHz (B) 6KHz (C) 4KHz (D) 8KHz

7. WAN stands for

   (A) Wide Area network (B) Wireless Area Network

   (C) Wide Adaptive Network (D) Wireless Adaptive network

8. A transmission mode where transmissions are possible in both directions simultaneously between same two stations is

   (A) full duplex (B)Half duplex (C) Simplex (D) Full/Full duplex

9. PIN diode is used as a

   (A) source (B) photo detector (C) coupler (D) attenuator

10. For a single mode optical cable of length 100Km with 0.25dB/Km loss, the optical power from 0.1mw light source is

(A) -35 dB (B) -15 dB (C) -40dB (D) -20dB

PART B (10 x 2 = 20 Marks)

11. State Carsons rule for bandwidth of an FM signal.
12. What is diagonal clipping?
13. Define the characteristic impedance of a transmission line.
14. What are the characteristics of AWGN noise?
15. Define the term bit error rate.
16. What is companding?
17. What is a bar code?
18. What is a modem?
19. What is pulse spreading?
20. What is a passive satellite?

PART C (5 x 14 = 70 Marks)

21. (a) i) Derive an expression for the power of a DSBSC signal. (4)

ii) Draw the block diagram of an FM receiver and explain the function of each stage. (10)

(OR)

(b) i) Discuss the basic operation of an AM modulator. (4)

ii) Describe the operation of an FM detector using PLL. (10)

22. (a) i) Describe the ground wave propagation. List its advantages and disadvantages. (6)

ii) Discuss about the quarter wavelength transformer matching. (8)

(OR)

(b) i) Describe sky wave propagation. (6)

ii) Explain why ionospheric conditions vary with time. (8)

23. (a) i) Discuss the advantages and disadvantages of Digital transmission. (4)

ii) Derive an expression for the probability of error in a BPSK receiver. (10)

(OR)

(b) i) Explain the operation of T1 carrier system. (4)

ii) Explain the method of Frequency Division Multiplexing. (10)

24. (a) i) Explain about the seven layers of OSI hierarchy model. (10)

ii) Discuss the need for forward error correction. (4)

(OR)

(b) i) Discuss the architecture of ISDN. (8)

ii) Write short notes on Local Area Networks Topologies. (6)

25. (a) i) Discuss the working of satellite communication system. (10)

ii) Explain the term reuse in satellite communication system. (4)

(OR)

(b) i) Discuss the working of Laser diode and its characteristics. (10)

ii) Write a short note on footprint. (4)

****