R16

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) The signal power at the input to a receiver is 6.2 nW and the noise power at the input to that receiver is 1.8 nW. Find SNR and SNR_{dB}. [2]
 b) Define modulation and classify? [3]
 c) Mention any two differences between ASK and FSK. [2]
 d) An FM wave is given by $s(t)=20\cos(8\pi\times10^6 t+9\sin(2\pi\times10^3 t))$. Calculate the frequency deviation, bandwidth, and power of FM wave. [3]
 e) Mention the advantages of LAN. [2]
 f) Discuss briefly about local loop in telephones. [3]
 g) What is trilateration principle? [2]
 h) Mention the differences between LEDs and laser diodes with respect to performance characteristics. [3]
 i) What are the functions of Mobile Station? [2]
 j) Discuss about infrared wireless technology. [3]

PART - B

(50 Marks)

2. Define the terms Gain, attenuation and decibels. And explain their importance in communications, with examples. [10]

OR

3.a) Illustrate electromagnetic spectrum and clearly indicate all the bands.
 b) A power amplifier with a 40 dB gain has an output power of 100 W. What is the input power in dBs and in normal units? [5+5]

4.a) Define PWM and explain the modulation process with neat diagram.
 b) A sinusoidal modulating waveform of amplitude 5 V and a frequency of 2 KHz is applied to FM generator, which has a frequency sensitivity of 40 Hz/volt. Calculate the frequency deviation, modulation index, and bandwidth. [6+4]

OR

5.a) Define ASK and describe the modulation process with neat diagram.
 b) Explain the frequency discrimination method of FM demodulation. [5+5]

6.a) Explain about electronic telephones.
 b) Describe Internet Telephony. [5+5]

OR

7.a) Discuss briefly about LAN hardware.
 b) Discuss about Ethernet LANs in detail. [5+5]

8.a) Explain about satellite sub systems.
 b) Describe the process for determining look angle. [5+5]

OR

9.a) Describe the operation and application of laser diodes.
 b) Discuss the differences between the various types of optical detectors with respect to performance characteristics. [5+5]

10. Draw and explain GSM architecture in detail. [10]

OR

11. Write short notes on the following.
 a) RFID communication
 b) UWB. [5+5]

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