



EC 1311 – COMMUNICATION ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
QUESTION BANK

SUBJECT CODE & NAME : EC 1311 – COMMUNICATION ENGINEERING
YEAR / SEM : III / V

UNIT-I
ANALOG COMMUNICATION

PART – A

1. Differentiate between AM and FM. (2)
2. The carrier amplitude after amplitude modulation varies between 4V and 1V. Calculate depth of modulation. (2)
3. What do you mean by AGC? (2)
4. Define modulation index of AM and FM. (2)
5. How PDM/PM signal is generated? (2)

PART –B

1. With a neat block diagram explain superheterodyne receivers. (16)
2. Explain in detail about the generation of SSB? (16)
3. a) Explain in detail about AM detector. (8)
b) Write short notes on FDM (8)
4. Draw the circuit diagram of Foster –seeley discriminator and explain its working. (16)
5. Discuss the indirect method of generating the FM. (16)

UNIT-II
TRANSMISSION MEDIUM

PART –A

1. What are the merits and demerits of axial cable. (2)
2. Draw a equivalent circuit of transmission line (2)
3. What are the losses occur in a transmission line. (2)
4. Define critical frequency, critical angle. (2)
5. Define fading. List its major causes. (2)

PART –B

1. a) Explain various types of parallel conductor transmission line. (8)
b) Explain various types of co-axial transmission line. (8)
2. Write short notes on (i) Impedance Matching (16)
(ii) Standing Waves
3. With a neat sketch explain ground wave propagation and line of sight propagation. (16)
4. Compare Ground wave, space wave and sky wave propagation. (16)
5. Define the following: (i) Virtual Height(3)
(ii) Maximum usable frequency(3)
(iii) Free space loss(3)
(iv) Skip distance and skip zone(3)



(v) White noise(4)

UNIT – III DIGITAL COMMUNICATION

PART –A

1. Define sampling theorem. (2)
2. Define quantization. (2)
3. Differentiate PCM and DM? (2)
4. Define Shannon limit for information capacity. (2)
5. What is the difference between PSK and QAM? (2)

PART –B

1. With a suitable block diagram explain PCM transmitter and PCM receiver? (16)
2. For a PCM system with following parameters, determine (a) Minimum sample rate
(b) Minimum no of bits used in the PCM code. (iii) Quantization error.
Maximum analog input frequency = 4 kHz
Maximum decoded voltage at receiver = $\pm 2.55V$
Minimum dynamic range = 46 dB (16)
3. a) With a suitable block diagram explain the operation of Delta modulation. (10)
b) Explain in detail about Adaptive Delta Modulation. (6)
4. Explain in detail about the Binary FSK and its bandwidth considerations. (16)
5. Derive the expression of probability of error on BPSK? (16)

UNIT-IV DATA COMMUNICATION AND NETWORK PROTOCOL

PART –A

1. What is a checksum? (2)
2. State disadvantages of RS-232 interface. (2)
3. What are the basic concepts of bar code? (2)
4. What is the primary function of ISDN? (2)
5. Define MODEM synchronization and list its functions. (2)

PART –B

1. a) Determine the block check sequence (BCS) for the following data and CRC generating polynomials. $G(x) = x^7 + x^4 + x^1 + x_0 = 10010101$
 $P(x) = x^5 + x^4 + x^1 + x_0 = 110011$ (10)
b) Briefly explain the need for equalizers in telephone circuits. (6)
2. With a neat block diagram, explain in detail about the data, control and status lines of a centronics parallel interface. (16)
3. With a neat sketch explain the principles, Architecture and various layers in ISDN. (16)



4. Briefly explain the seven layers in the OSI hierarchy. (16)
5. a) With a neat sketch explain the operation of MODEM. (8)
- b) Write short notes on Error correcting Techniques. (8)

UNIT-V

SATELLITE AND OPTICAL FIBRE COMMUNICATIONS

PART –A

1. List any four advantages of geosynchronous orbits. (2)
2. Define Kepler's law. (2)
3. Give any two disadvantages of the single mode step index fibers. (2)
4. What are the losses in optical fibre. (2)
5. Differentiate step index and graded index fiber. (2)

PART –B

1. Briefly describe the functional characteristics of an uplink, a transponder and a down link model for a satellite system. (16)
2. With a neat sketch for the ray propagation into and down an optical fiber cable, derive an expression for the acceptance angle. (16)
3. Explain the following: (i) Look angles (8)
- (ii) Satellite Link equations (8)
- (iii) Angle of incidence (4)
4. With a neat sketch explain Geostationary satellites (16)
5. Write short notes on (i) Light sources
- (ii) Light detectors (16)