BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – Dip.RA-2022/Dip.RA-2023
Course Name – Principles of Electronic Communication
Course Code - ECPC301
(Semester III)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) For generation of FSK the data pattern must be represent in
   a) RZ format b) NRZ format
   c) split phase Manchester d) none of these

(ii) The bit rate of a digital communication system is 34 Mbps. The modulation scheme is QPSK. Calculate the bout rate of the system
   a) 68 Mbps b) 34 Mbps
   c) 17 Mbps d) 85 Mbps

(iii) ASK is an extend of combination of shift keying
   a) analog modulation b) amplitude modulation
   c) digital modulation d) none of these

(iv) MSK (Minimum Shift Keying) is an orthogonal FSK scheme that gets its name from the fact that
   a) the phase shift is minimum b) the error probability is minimum
   c) the transmission power required is minimum d) the transmission bandwidth required is minimum

(v) Identify, in communication system noise is most likely to affect the signal
   a) at transmitter b) in channel
   c) in information source d) at destination

(vi) State, communication is the process of
   a) keeping in touch b) broadcasting
   c) exchanging information d) entertainment by electronics

(vii) Thermal noise is also named as
   a) johnson noise b) avalanche noise
   c) shot noise d) flicker noise

(viii) The association of the input transducer in a communication system is
   a) to transmit the message signal b) to modulate the message signal

c) to convert message signal into electrical signal
d) none of these

(ix) Which one of the following multiplexing technique involves signal composed of light beams?

a) CDM
b) TDM
c) FDM
d) WDM

(x) Eye pattern is used to estimate

a) ISI
b) quantization noise
c) error rate
d) none of these

(xi) The signal to quantization noise ratio in an n-bit PCM system

a) depends upon the sampling frequency employed
b) is independent of the value of n
c) increase with increasing value of n
d) decreases with increasing value of n

(xii) The process of converting the analog samples into discrete form is called

a) quantization
b) modulation
c) multiplexing
d) sampling

(xiii) Alternate Mark Inversion (AMI) signaling is also establish as

a) Bipolar signaling
b) Polar signaling
c) Manchester signaling
d) Unipolar signaling

(xiv) Vestigial sideband modulation is generally employed for

a) satellite system
b) broadband system
c) TV transmission
d) point-to-point communications

(xv) When modulating frequency is doubled, the modulation index is halved and the modulating voltage remains constant. Name the modulation system

a) AM
b) FM
c) PM
d) all of these

Group-B
(Short Answer Type Questions) 3 x 5=15

2. State the sampling theorem. (3)

3. Prepare a comparative study on AM and FM. (3)

4. Explain modulation and detection in communication. (3)

5. Show that the efficiency for a single-tone AM is 33.33% for perfect modulation. (3)

6. Organize the data stream 101101 using the following line coding techniques: (a) Unipolar RZ (b) Polar NRZ (c) Bipolar RZ (3)

OR

State Nyquist's criterion for zero Inter Symbol Interference (ISI). (3)

Group-C
(Long Answer Type Questions) 5 x 6=30

7. Compare delta modulation and pulse code modulation schemes. (5)

8. Summarize the relative merits and demerits of various forms of AM. (5)

9. Draw the block diagram for generation of PCM system and explain it. (5)

10. Sketch the block diagram of a communication system and explain the function of each block. (5)

11. Discuss the key Advantages and Disadvantages of Pre-Emphasis and De-Emphasis In Communication Systems. (5)

12. Explain the disadvantages of delta modulation in short. (5)

OR

With the help of block diagram illustrate the adaptive delta modulation technique. (5)

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