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Question Paper Code	12426
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B.E. / B.Tech - DEGREE EXAMINATIONS, NOV / DEC 2023
Fourth Semester
Computer and Communication Engineering
20CCPC401 - ANALOG AND DIGITAL COMMUNICATION
(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|--|-------------------------------|
| 1. What is analog modulation? | <i>2,K1,CO1</i> |
| 2. What is called as AM envelope? | <i>2,K1,CO1</i> |
| 3. Tell about direct FM and direct PM. | <i>2,K1,CO2</i> |
| 4. What is meant as modulation index for phase modulated carrier signal? | <i>2,K1,CO2</i> |
| 5. What is companding? | <i>2,K1,CO3</i> |
| 6. List the different line coding techniques. | <i>2,K1,CO3</i> |
| 7. Define symbol and baud rate. | <i>2,K1,CO4</i> |
| 8. Tell how probability of error is different from bit error rate. | <i>2,K1,CO4</i> |
| 9. List the properties of hamming code. | <i>2,K1,CO5</i> |
| 10. What is Rate of Information? | <i>2,K1,CO5</i> |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

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|---|------------------|
| 11. a) What is AM? Explain in detail the principles of AM modulation Technique. | <i>13,K1,CO1</i> |
| OR | |
| b) What is DSBSC modulation technique? Explain it. | <i>13,K1,CO1</i> |
| 12. a) Explain in detail the indirect FM transmitters with neat diagram. | <i>13,K2,CO2</i> |
| OR | |
| b) Discuss in detail the direct PM modulators with neat diagram. | <i>13,K2,CO2</i> |
| 13. a) Explain PCM system with neat block diagram. | <i>13,K2,CO3</i> |
| OR | |
| b) Describe the delta modulation technique with necessary block diagram. | <i>13,K2,CO3</i> |

14. a) Explain the OSI seven layer protocol hierarchies in detail. *13,K2,CO4*

OR

b) Describe in detail the BPSK transmitter with necessary diagrams. *13,K2,CO4*

15. a) A discrete memory less source has 5 symbols X1, X2, X3, X4 and X5 with probabilities 0.4, 0.19, 0.16, 0.15 and 0.10 respectively. Construct Shannon Fano Code and calculate efficiency and redundancy. *13,K2,CO5*

OR

b) What is entropy? Prove its properties. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Explain in detail about TDMA with neat diagram. *15,K2,CO6*

OR

b) Describe the GPRS system architecture in detail. *15,K2,CO6*