

**JAMIA HAMDARD**  
**Department of Computer Science & Engineering**  
**School of Engineering Sciences & Technology**  
**New Delhi-110062**

**Examination: Even Semester Examination 2023**

**Paper Name: Analog and Digital Communication**

**Paper Code: BTECE 401(Lateral Entry)**

**Time : 3 Hours**

**Maximum Marks: 75**

**Section A**

**Note: Attempt all the questions**

**7x5=35**

| Q.No. | Question                                                                                                                                                                   | Marks | CO  | BL  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|
| 1.    | Discuss historical development of communication system.                                                                                                                    | 5     | CO2 | BL1 |
| 2.    | Explain the Delta modulation .                                                                                                                                             | 5     | CO1 | BL2 |
| 3.    | Derive the relation between the output power of an AM transmitter and depth of modulation, and plot it as a graph for values of the modulation index from zero to maximum. | 5     | CO1 | BL4 |
| 4.    | Express the general expression of Amplitude Modulated signal and discuss its various variables.                                                                            | 5     | CO3 | BL1 |
| 5.    | Why the need of Modulation arises? Explain with the help of examples.                                                                                                      | 5     | CO4 | BL1 |
| 6.    | Explain the SSB and VSB in AM                                                                                                                                              | 5     | CO4 | BL3 |
| 7.    | Explain the pre-emphasis and De-emphasis in FM                                                                                                                             | 5     | CO1 | BL2 |

**PTO**

## Section B

Note: Attempt any four (4) Questions

(4x10=40)

| Q.No. | Question                                                                                                                                                               | Marks | CO  | BL  |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|
| 1.    | a) A transmitter radiates 9KW of power with carrier unmodulated and 10.125 KW when modulate. calculate the depth of modulation.<br>b) Differentiate between AM and FM. | 10    | CO2 | BL2 |
| 2.    | Explain about the different types of noises in communication system                                                                                                    | 10    | CO1 | BL2 |
| 3.    | Explain in details about the TDMA technique on signal to noise ratio                                                                                                   | 10    | CO3 | BL2 |
| 4.    | Explain the different types of modulation scheme                                                                                                                       | 10    | CO4 | BL4 |
| 5.    | Write notes on the following:<br>(a) Maximum Likely hood sequence detection<br>(b) Equalisation Technique                                                              | 10    | CO3 | BL1 |
| 6.    | Explain the Digital modulation Trade-offs                                                                                                                              | 10    | CO2 | BL2 |

BL : Bloom's Taxonomy Level (1-Remembering, 2-Understanding, 3-Applying, 4-Analysing, 5- Evaluating, 6- Creating)