

Fundamentals of Communication
Engineering

QP Code : 548202

(3 Hours)

| Total Marks : 80

- N.B.:** (1) Question No.1 is **Compulsory**.
 (2) Attempt any **three** questions out of remaining **five** question.
 (3) Assume suitable data if required.

1. Answer the following (**Any four**):-

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| (a) Explain the concept of equivalent noise temperature. | 5 |
| (b) Explain the distortions in diode detector in AM receiver. | 5 |
| (c) Explain noise triangle concept in FM. | 5 |
| (d) Explain the sampling theorem & aliasing error. | 5 |
| (e) Explain the need of Modulation in analog communication. | 5 |
| 2. (a) Explain the direct and indirect method of generation of FM signal. | 10 |
| (b) Explain the different method of generation of SSB. | 10 |
| 3. (a) In superheterodyne receiver having no RF amplifier, the loaded Q of the antenna coupling circuit is 100. If the IF is 455kHz, calculate:
1) The image frequency and its rejection ratio for tuning at 100kHz
2) The image frequency and its rejection ratio for tuning at 25MHz. | 10 |
| (b) Explain TRF receiver with block diagram also explain TRF sensitivity and TRF selectivity characteristics. | 10 |
| 4. (a) Explain the process of quantization in PCM. Determine the signal to noise ratio at the output. | 10 |
| (b) "In PCM, SNR can be controlled by transmission bandwidth" Justify. Compare PCM and Delta modulation. | 10 |
| 5. (a) Explain the ratio detector with the help of circuit diagram and explain its merits. | 10 |
| (b) Explain PAM, PWM, PPM generation and detection. | 10 |
| 6. (a) Compare digital signal and analog signal transmission. | 5 |
| (b) Derive Friis formulas for noise. | 5 |
| (c) Explain the slope overload and granular noise in Delta modulation. | 5 |
| (d) Explain FDM with neat block diagram | 5 |

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