

University of Mumbai

Examinations summer 2022

Program: **Electronics Engineering**

Curriculum Scheme: Rev2019

Examination: SE Semester IV

Subject code: 40924 and Course Name: **Principles of Communication Engineering**

Time: 2 hour 30 minutes

Max. Marks: 80

| Q1. | Choose the correct option for following questions. All the Questions are compulsory and carry equal marks |
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| 1. | What is TRF |
| Option A: | Tuned Radio Frequency |
| Option B: | Tuned Resonant Frequency |
| Option C: | Time Resonated frequency |
| Option D: | Transfer Radio Frequency |
| 2. | Pulse width modulation is a type of _____ modulation |
| Option A: | Analog |
| Option B: | Digital |
| Option C: | Angle |
| Option D: | circular |
| 3. | Demodulation is done in _____ |
| Option A: | Channel |
| Option B: | Receiving antenna |
| Option C: | Transducer |
| Option D: | Radio Receiver |
| 4. | For over modulation, the value of modulation index m is |
| Option A: | $m < 1$ |
| Option B: | $m = 1$ |
| Option C: | $m > 1$ |
| Option D: | $m = 0$ |
| 5. | Which of the following block is not present in a Low level modulated AM transmitter |
| Option A: | Linear amplifier |
| Option B: | Power amplifier |
| Option C: | Class C RF O/P amplifier |
| Option D: | Class A buffer amplifier |
| 6. | For TDM, the data rate of the multiplexed signal is always n times the data rate of _____, where n is the _____. |
| Option A: | modulating signal, amplitude |
| Option B: | individual sources, number of sources |
| Option C: | combined voltage, constant |
| Option D: | modulating signal, frequency |
| 7. | The Nyquist rate of signal samples/sec |
| Option A: | Fm |
| Option B: | 2 fm |
| Option C: | N fm |

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| Option D: | 2N fm |
| 8. | Modulation is done at _____ |
| Option A: | Transmitter |
| Option B: | Multiplexer |
| Option C: | Channel |
| Option D: | Receiver |
| 9. | Pre- emphasis is required to |
| Option A: | Boosting carrier frequencies |
| Option B: | To convert PM to FM |
| Option C: | Provide better noise immunity |
| Option D: | Amplifying lower audio frequencies |
| 10. | In an AM wave, the majority of the power is in _____ |
| Option A: | Upper sideband |
| Option B: | Carrier |
| Option C: | Lower sideband |
| Option D: | Single side band |

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| Q2 | Solve any Two Questions out of Three (10 marks each) |
| A | Compare AM ,FM, and PM. |
| B | Write a short note on basic communication system with the help of a neat diagram. |
| C | Explain how SSB signal (with USB suppressed) is generated using phase shift method with a block diagram |

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| Q3 | Solve any Two Questions out of Three (10 marks each) |
| A | Explain PAM, PWM and PPM generation with neat block diagrams. |
| B | Derive the expression for FM wave. Comment on bandwidth of FM wave. |
| C | Define modulation index and percentage modulation. Draw the block diagram of the adaptive delta modulation system and explain its operation |

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| Q4 | Solve any Two Questions out of Three (10 marks each) |
| A | What is Automatic Gain Control (AGC)? Explain Automatic Frequency Control (AFC) in details. |
| B | Explain generation of PCM with block diagram and waveforms |
| C | What is Sampling theorem. Explain Flat Top Sampling in Details. |