NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SESSIONAL-II

COMMUNICATION ENGINEERING (ECPC35) B.Tech. 3rd Sem
Date: 17/11/2022 MAX. MARKS: 15 TIME: 50min

Following information must be mentioned on the first page of the answer sheet

2. Section 2. Roll Number 3. Name of the student 4. Subject code (Test II)

Q1. A receiver is tuned to 1 MHz station IF=455KHz, Q=100 [5]

IV. Find IRR
V. Find IRR if the receiver is tuned to 25 MHz
VI. Find the new value of IF required to maintain IRR of 138. When the receiver is tuned to 25 MHz station.

Q2. A message signal of $5cos2\pi \times 10^4 t$ is transmitter through a PCM system sampling rate is 150% higher than Nyquist rate. Maximum quantization error should be almost 0.1% of peak amplitude of message signal. Find all the parameters of the PCM.

2. Sampling frequency ($\mathbf{f_s}$) 2. Step size (Δ) 3. Number of bits per sample **(n)**
4. Number of quantization levels (**L**) 5. Bit rate ($\mathbf{R_b}$) 6. Bit duration ($\mathbf{T_b}$) 7. Bandwidth **(BW)**

[6]

Q3. 10 sinusoidal message signals each having frequency of 20KHz are multiplexed using TDM sampling rate is 2.5 times to Nyquist rate. Maximum quantization error should be at most of 1% of peak amplitude of message signal. Number of control bits are 5. Find the bit rate of transmitter. [4]