COLLEGE OF ENGINEERING, PUNE
(An autonomous Institute of Government of Maharashtra)

End-Semester Examination

CT-213 Principles of Communication Engineering
Class: - S.Y BTech (Information Technology)

Year: - 2011-12 **Semester: -IV**
Duration: - 3 hrs. **Max. Marks: - 50**

Instructions:
1. **Attempt all questions.**
2. **Figures to right indicate full marks.**
3. **Draw neat figures wherever required.**

GROUP –A
(Multiple Type Questions)

Q.1 ***Choose the correct alternatives and explain with working for ANY 4 of the following:-*** 4*0.5=2

1) **Entropy is basically measure of-**
   a. **Rate of information**
   b. **Average of information**
   c. **Probability of information**
   d. **Disorder of information**

2) **The bandwidth is required for transmitting a 4 KHz signal using PCM with 128 quantization levels.**
   a. **8 KHz**
   b. **16 KHz**
   c. **28 KHz**
   d. **32 KHz**

3) **In TV system, picture & sound respectively use-**

   a) **AM,FM** b)**FM,FM**

   c) **FM,AM** d)**AM,AM**

4) **The intermediate frequency used for a super heterodyne FM receiver is-**

   a)**455 kHz** b)**755 kHz** c) **545 kHz** d)**745 kHz.**

5) If the number of bits in PCM is increased from 7bits to 8 bits the SNR
a) increases by 10 dB b)decreases by 10 dB
c) increases by 6 dB d)) increases by 8 dB.

GROUP B

Short Answer Type Questions

Answer any SIX of the following 4*6=24

1) Explain in detail amplitude modulation.
The rms value of a radio frequency voltage is 200 volts before modulation. When it is modulated by a sinusoidal audio frequency voltage, its rms voltage becomes 242 volts. Calculate the modulation index.

2) Explain significance and working of Hamming codes in detail for error detection and error correction.

3) Compare and contrast ADPCM, DPCM and PCM.

Find the bandwidth for a signal transmitting at 12Mbps for QPSK. Assume d=0.

4) Define Sampling theorem .Explain in detail different types of sampling.

A radio AM station transmits at 10 KW when percentage of modulation is 60%.Calculate the carrier power .Find the power saving if SSB-SC is transmitted instead of AM signal.

5) Draw the block of a super heterodyne receiver and explain the function of each block.

6) Find the Fourier co-efficient of a periodic pulse train of period T0.

7) What are the causes of Inter Symbol Interface (ISI)?. Explain how eye pattern is used to measure ISI. How the Sensitivity can be determined from the Eye pattern?