Acropolis Institute of Technology and Research, Indore

Analog and Digital Communication
Reference Questions- Unit 4 &5

1. Explain and prove the Sampling Theorem for low pass signals.
2. Compare and contrast Natural Sampling, Flat top sampling and aperture effect in analog to digital conversion. Explain their implication on the reconstructed signal.
3. Determine the Nyquist rate for the following: $0.5\cos(4000\pi t)\cos(1000\pi t)$
4. Write short notes:
   a) Companding
   b) QPSK generation and detection
   c) TDM
   d) QAM
5. Draw the necessary waveforms for PAM, PWM and PPM signals
6. Describe the BPSK and BFSK modulation technique. Derive the equation and discuss their bandwidth. Explain the coherent detection for both.
7. Compare PCM, DPCM, ADM and DM.
8. Explain the steps involved in generation of a PCM signal. Also define quantization error.
9. Explain the generation and detection of DPSK.
10. Explain the limitations associated with Delta modulation and how it is overcome with the help of ADM.
11. Discuss the generation and detection of QAM signals. Explain the constellation diagram and the relationship between the number of bits and constellation size in QAM.