Final Examination Review Notes

Chapter 8: Lossy Compression
   Terms: Cones, Rods, Weber's ratio, Mach band, MTF

Chapter 9: Quantization
   Design: Optimum Uniform Quantizer Design, Rate-Distortion Bounds,
   Terms: Midrise vs. Midtread Quantizer, overload, granular, nonuniform quantizer

Chapter 10: Differential Coding
   Design: Predictor design in DPCM, Quantization & Predictor in G.726
   Terms: DPCM, ADPCM, Delta Modulation, Slope Overload, Forward/Backward adaptive quantization, Adaptive Jayant-DPCM

Chapter 11: Mathematical Preliminaries
   Design: Parseval's theorem for Fourier transform, modulation property for Fourier transform, convolution theorem for Fourier transform.
   Terms: Vector Space, Basis, Orthonormal Sets

Chapter 12: Transform Coding
   Design: KL Transform, Design Concept of Transform Coding, Block diagram and explanation of the blocks in JPEG coding,
   Terms: Threshold coding, Zigzag Scan

Chapter 13: Subband Coding
   Design: G.722 block diagram and block explanation,
   Terms: Filterbank, Impulse Response, Convolution, Linear Systems, eigen functions of LTI Systems, QMF

Chapter 14: Audio Coding
   Design: MPEG Layers 1-3 Block diagram and block explanation,
   Psychoaustic Model I
   Terms: Premasking, Simultaneous masking, Postmasking, Intensity Stereo, MS stereo

Chapter 15: Video Coding
   Design: MPEG1 Encoder block diagram, Motion Estimation for Encoder: Search Area and Motion Blocks
   Explain the reasons to have three pictures types: I, P, B.
   GOP, Slice, Macroblock, Block.