

Minor-1
EEL707, EEL786

1. Design a lossless progressive image compression scheme for 12 bit X-ray images such that an approximation can be reconstructed first at the viewing station which gets refined gradually to produce an error-free display. Provide conceptual block diagram of the encoder and specification/design of building blocks. (6)

2. Quadtree as its name suggests is a tree where each node can have atmost four children. Design a motion estimation algorithm for a H.264 encoder using quadtree as the basic data structure for searching optimal decomposition of the macroblock. The algorithm should be able to address multi-frame buffer requirement of H.264 for reducing residual error. (6)

3. Answer following questions briefly:
- (i) What is a rate control module in an encoder?
 - (ii) Is there any dependence on the nature of DCT basis functions on blocking artifact?
 - (iii) How JPEG 2000 supports ROI coding?
 - (iv) How MPEG-4 standardised face animation?

(4x2 = 8)