

DEPARTMENT OF COMPUTER SCIENCE AND ENGG.

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI- 620 015.

CYCLE TEST II

CSPE 74 - IMAGE PROCESSING AND ITS APPLICATIONS

Date: 16/10/25

TIME: 60 Mins

Max: 20 marks

ANSWER ALL THE QUESTIONS

1. With a neat sketch, explain the process of image degradation/restoration. (2)
2. List out the different types of Noise models. Explain each with diagrams and the probability density function (3)
3. Explain why the contraharmonic filter is effective in eliminating pepper noise when Q is positive and for eliminating salt noise when Q is negative. (1)
4. Obtain the equations for bandpass filters corresponding to the bandreject filters. (2)
5. What is an adaptive filter? Write the algorithm for the adaptive median filter. (2)
6. How do the data redundancy and compression ratio relate? What are the three principal types of data redundancies that can affect a two-dimensional intensity array? (2)
7. Explain block transform coding with a neat sketch. (2)
8. Explain lossy predictive coding with a suitable diagram for compression and decompression. (2)
9. Perform LZW compression for the following image

255 254 255 254
253 252 253 252
255 255 254 254
250 251 252 253

(4)