**ESE- All**

Printed Pages: UID No: ……………

Academic year Semester 2021 – 2022

Program Name/Code: Semester: 5th

Subject Title: Fundamentals of Image Processing Subject Code: CSY/ITY-310

Time: 3 Hour Maximum Marks: 60

**Instructions: Attempt all questions**

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| Q. No | Statement | CO mapping |
| **Section A**  5 x 2 = 10 marks | | |
| 1 | Is DWT orthogonal? | CO5 |
| 2 | Enumerate Linearity property of 2D Transform. | CO5 |
| 3 | Brief about Box Filter. | CO5 |
| 4 | Can we compress image without losing quality? | CO5 |
| 5 | Brief about Lossy Compression with example. | CO5 |
| **Section B**  4 x 5 = 20 marks | | |
| 6 | Brief about components of image processing. | CO5 |
| 7 | Explain Sampling. | CO5 |
| 8 | Explain Region Based Segmentation. | CO5 |
| 9 | Describe wavelet in detail with example. | CO5 |
| **Section C**  3 x 10 = 30 marks | | |
| 10 | Consider the image given below for which the set of grey levels given as V={0} & check what kind of adjacency exist among pixel p &q   |  |  |  | | --- | --- | --- | | 0 | 0q | 1 | | 1 | 0P | 1 | | 0 | 1 | 0 | | CO5 |
| 11 | Consider the image given below & calculate the output of the pixel(1,1) if smoothing is done using 3x3 neighbourhood using all filters below:-  1) Box Filter  2) Weighted average filter  3)Median filter  4) Minimum filter  5) Maximium filter | CO5 |
| 12 | Using the Hough Transform, show that the following points are collinear. Also Find the equation of the line (1,2), (2,3) and (3,4). | CO5 |