Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14EC2057** | **Duration :** | **3hrs** |
| **Sub. Name :** | **DIGITAL IMAGE PROCESSING** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | With neat diagram, illustrate the different steps in digital image processing. | CO2 | 20 |
| (OR) | | | | |
| 2. | a. | Draw and explain the structure of human eye. | CO2 | 10 |
| b. | Discuss the process of image formation in human eye. | CO2 | 10 |
|  |  |  |  |  |
| 3. | a. | Point out the technical aspects of different image acquisition sensors with neat diagrams. | CO2 | 15 |
|  | b. | Summarize the necessity for quantization in digital image processing | CO2 | 5 |
| (OR) | | | | |
| 4. |  | With mathematical equations, describe the following relationships between pixels: i. Neighbors ii. Adjacency iii. Connectivity iv. Regions v. Boundaries and vi. Distance measures | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | Suggest suitable methodologies for the following transformations in the image:  i. Negative ii. Log transformation iii. Power law transformation,  iv. Contrast stretching v. Slicing | CO2 | 20 |
| (OR) | | | | |
| 6. | a. | Formulate mask based mathematical techniques for smoothening the input image in the spatial domain. | CO3 | 10 |
|  | b. | Show the process of histogram based processing techniques for image enhancement. | CO3 | 10 |
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| 7. | a. | Frame suitable filtering based techniques to restore the original image from the corrupted image in the spatial domain. | CO3 | 10 |
|  | b. | Describe the masking based techniques to detect points, lines and edges in any given images. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Draw and explain the general block diagram of image compression system. | CO3 | 10 |
|  | b. | Explain any one pattern recognition algorithm used for image processing applications. | CO3 | 10 |
|  | |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. |  | Illustrate the filtering based processing techniques for sharpening the input images in frequency domain. | CO3 | 20 |

ALL THE BEST