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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code : 14EC3071** |  | **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. |  | Explain the basic intensity transformation functions with examples. | CO1 | 20 |
| (OR) | | | | |
| 2. |  | Define histogram and its necessity in assessing an image. Explain how histogram processing enhances the digital images? | CO1 | 20 |
| 3. | a. | Outline the fundamental steps involved in digital image processing. | CO1 | 10 |
| b. | How arithmetic and logic operators can be used to enhance the digital images. | CO2 | 10 |
| (OR) | | | | |
| 4. |  | Summarize the performance of frequency domain smoothening and sharpening filters. Support your answer with necessary mathematical equations. | CO2 | 20 |
|  |  |  |  |  |
| 5. | a. | Discuss the operation of color transformations with necessary equations. | CO2 | 10 |
| b. | Design a procedure for restoring the original image from the degraded image. | CO2 | 10 |
| (OR) | | | | |
| 6. |  | Comment briefly on the procedure to estimate the degradation function. | CO2 | 20 |
| 7. | a. | Write short notes on wiener and Inverse filtering in restoring the noisy images. | CO3 | 15 |
| b. | Illustrate the operation of erosion morphological operator on a digital image. | CO3 | 5 |
| (OR) | | | | |
| 8. |  | Explain the procedure to detect point, lines and edges in an image. | CO3 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | List the types of thresholding and explain how it is used in the segmentation process. | CO3 | 10 |
| b | Explain the steps involved in region based segmentation with a case study. | CO3 | 10 |