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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – April/May – 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. | a. | Explain the fundamental steps involved in digital image processing with neat block diagram. | CO1 | 10 |
| b. | Discuss the applications of Digital Image processing with examples. | CO1 | 10 |
| (OR) | | | | |
| 2. |  | Comment briefly on spatial and intensity resolution. | CO1 | 20 |
| 3. |  | List the types of sensors available for image acquisition and elaborate its working principle. | CO1 | 20 |
| (OR) | | | | |
| 4. | a. | Write the representation of digital images. | CO1 | 6 |
|  | b. | Explain the basic concepts in sampling and quantization. | CO2 | 14 |
| 5. | a. | Define adjacency, connectivity, regions and boundaries in a digital image with an example. | CO2 | 12 |
|  | b. | Differentiate color image processing from gray image processing | CO2 | 8 |
| (OR) | | | | |
| 6. |  | Analyze the performance of image smoothing using frequency domain filters? Support your answer with necessary mathematical equations. | CO2 | 20 |
| 7. | a. | Comment briefly on the various noise probability density functions used in the image restoration process. | CO2 | 10 |
|  | b. | Discuss the use of power law and contrast stretching transformations on digital images. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Illustrate the need for Image compressin with a classical example. | CO3 | 10 |
|  | b. | Explain the use of wavelets in image compression. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Comment briefly on the various thresholding concepts used in digital image processing techniques. | CO3 | 10 |
|  | b. | Write the procedure to detect the points and edges using various masks in digital images. | CO3 | 10 |

ALL THE BEST