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 – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **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 Application areas in which Digital Image processing is used. | CO1 | 10 |
| b. | What is Hue and Saturation | CO1 | 4 |
|  | c. | Explain Sampling and Quantizations | CO1 | 6 |
| (OR) | | | | |
| 2. |  | Describe the following Sharpening filters in detail. |  | 20 |
| a. | Ideal Filters | CO1 |  |
| b. | Butterworth Filters | CO1 |  |
| c. | Gaussian Filters | CO1 |  |
| 3. |  | Enumerate the following Color Models |  | 20 |
|  | a. | CMY | CO1 |  |
|  | b. | RGB | CO1 |  |
|  | c. | HSV. | CO1 |  |
| (OR) | | | | |
| 4. |  | Explain the following Noise Distribution in detail. |  |  |
|  | a. | Gamma Noise | CO2 | 10 |
|  | b. | Exponential Noise | CO2 | 10 |
| 5. |  | Explicate the following Basic Intensity transformation functions.  a)Image Negative  b) Log Transformations  c) Gamma Transformations | CO2 | 20 |
| (OR) | | | | |
| 6. |  | Write a Matlab code to perform the following |  |  |
|  | a. | Read an image using Matlab | CO3 | 5 |
|  | b. | Convert the image to gray | CO3 | 5 |
|  | c. | Display the number of rows and columns | CO3 | 5 |
|  | d. | Perform histogram equalization of the green channel | CO3 | 5 |
| 7. |  | Explain the following noise models |  |  |
|  | a. | Gaussian Noise Model | CO2 | 10 |
|  | b. | Salt and Pepper Noise | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Brief the Chain Code and Freeman Code boubdary descriptors. | CO2 | 10 |
|  | b. | Define Compression and explain the general compression model | CO2 | 10 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the Structure of the Human Eye with a neat diagram. | CO1 | 13 |
|  | b. | How are Image Sensing and Acquisition carried in a typical image processing application? Explain the three principle sensor arrangements for the same. | CO1 | 7 |

ALL THE BEST