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 :** | **14EC3005** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCED 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. | Sketch the human eye and describe the anatomical structures with its functions. | CO1 | 10 |
| b. | Illustrate the application of image processing in medical field with an example. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | List out the 2D transforms available for image processing and their need. | CO1 | 5 |
| b. | Give the 2D- Discrete Fourier Transform expression and explain its properties. | CO1 | 15 |
| 3. |  | Comment briefly on the various grey level transformations available for image enhancement. | CO1 | 20 |
| (OR) | | | | |
| 4. | a. | Discuss the procedure to detect the edges using various edge operators. | CO2 | 15 |
|  | b. | Write short notes on histogram processing. | CO2 | 5 |
| 5. | a. | Estimate the transfer function of 2nd order Butterworth Low pass filter for Do Value of 15 and D (u,v) values of 10, 20 and 30. Plot the graph between H(u,v) and D(u,v). | CO2 | 10 |
|  | b. | Find the value of logical operation AND for the binary images A and B. Assume 1 to be the foreground and 0 to be the ground pixels. | CO2 | 5 |
|  | c. | List the Frequency domain filters used for image enhancement. | CO2 | 5 |
| (OR) | | | | |
| 6. |  | Analyze the morphological operations used in image processing with respect to entertainment applications. | CO2 | 20 |
| 7. | a. | Illustrate the need for image registration with suitable example. | CO3 | 10 |
|  | b. | Discuss the application of transformation function in image registration. | CO3 | 10 |
| (OR) | | | | |
| 8. |  | Summarize the implementation procedure required to do region based fusion. | CO3 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | List the measurements made on 3D images. | CO3 | 5 |
|  | b. | Exlain the process of 3D image visualiszation and sterioviewing | CO3 | 15 |