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

G:\logo and QP Template\logo 3 Feb 2018 final.tif

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

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **17EC3018** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCED DIGITAL IMAGE PROCESSING** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | With neat block diagram explain the fundamental steps involved in Digital Image Processing. | CO1 | 10 |
| b. | Discuss the applications of Image processing in the field of medicine with a case study. | CO4 | 10 |
| (OR) | | | | |
| 2. |  | Write the forward and reverse 2D- Discrete Fourier Transform expression and list out its applications and properties. | CO1 | 20 |
|  |  |  |  |  |
| 3. |  | Comment briefly on the various grey level transformations available for image enhancement. | CO1 | 20 |
| (OR) | | | | |
| 4. | a. | Write short notes on visual perception and resolution in viewing a digital image. | CO1 | 8 |
| b. | Summarize the operation of various spatial smoothening filters used for image enhancement | CO5 | 12 |
|  |  |  |  |  |
| 5. | a. | Comment on the various morphological operators used for processing the digital images. | CO2 | 14 |
| b. | Estimate the transfer function of 1st order Butterworth low pass filter for Do Value of 20 and D (u,v) values of 10, 20 and 30. Plot the graph between H(u,v) and D(u,v). | CO5 | 6 |
| (OR) | | | | |
| 6. | a. | State the need for feature extraction in images. | CO5 | 5 |
| b. | How thresholding concept is used in segmentation of objects in an image? | CO2 | 8 |
| c. | Design a procedure to detect lines and edges in digital images. | CO5 | 7 |
|  |  |  |  |  |
| 7. | a. | Discuss the transformation function used in Image registration process. | CO5 | 15 |
| b. | Write short notes on thresholding. | CO2 | 5 |
| (OR) | | | | |
| 8. |  | Explain the pixel and region based fusion techniques adopted in processing the digital images. | CO6 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the techniques adopted to make measurements on 3D images. | CO4 | 10 |
| b. | Assess the real time applications of 3D images in comparison to 2D images. | CO4 | 10 |