

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



# Karunya 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

**Code : 14EC3071**  
**Sub. Name : DIGITAL IMAGE PROCESSING**

**Semester : 2016-17 ODD**  
**Duration : 3hrs**  
**Max. marks : 100**

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

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	How will you enhance the image quality using arithmetic and logic operations?	CO1	10
	b.	Discuss the use of power law and contrast stretching transformations on digital images.	CO1	10
(OR)				
2.	a.	How will you improve the contrast of the images using spatial domain sharpening filters? Also, explain the steps involved in Laplacian filtering process.	CO1	15
	b.	What is the need for image compression? What is the storage space required to store an 8 bit level grey image with dimension 256×512?	CO1	5
3.	a.	How will you perform image smoothing using frequency domain filters? Support your answer with necessary mathematical equations.	CO2	15
	b.	Write short notes on histogram equalization.	CO1	5
(OR)				
4.	a.	With necessary mathematical steps, illustrate the methodology of homomorphic filtering in digital images.	CO2	15
	b.	Comment briefly on the various color models available for image processing.	CO2	5
5.	a.	Illustrate the process of image restoration using degradation models.	CO2	10
	b.	Comment briefly on the various noise probability density functions used in the image restoration process.	CO2	10
(OR)				
6.	a.	With mathematical expressions, explain the process of weiner filtering in digital images.	CO3	10
	b.	Explain the following morphological operators in detail: (a) Erosion, (b) Dilation, (c) Opening, (d) Region filling and (e) Thickening	CO3	10
7.	a.	Bring out the technical concepts of mean filters and order statistics filters used for image restoration	CO3	15
	b.	Give the mathematical expressions of any five noise probability density functions used in image processing.	CO3	5
(OR)				
8.	a.	Comment briefly on the various thresholding concepts used in digital image processing techniques.	CO3	10
	b.	Explain the inverse filtering process for restoring the original image from the noise corrupted image.	CO3	10
<b><u>Compulsory:</u></b>				
9.	a.	How will you detect the (a) points, (b) lines and (c) edges using various masks in digital images?	CO3	20

ALL THE BEST

