C

Reg. No. :

M.E. DEGREE EXAMINATION, MAY 2018

Elective

Computer Science and Engineering

15PCS513 - IMAGE PROCESSING AND ANALYSIS

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 1= 5 Marks)

1. Image derivatives are defined as   CO1- R

    (a) sum   (b) differences   (c) multiplication   (d) division

2. 2D Fourier transform and its inverse are infinitely   CO2 -R

    (a) aperiodic   (b) periodic   (c) linear   (d) non linear

3. Masks for detection of specific lines are called   CO3- R

    (a) Isolated   (b) tuned   (c) Isomorphic   (d) isotropic

4. Sets in morphology are referred to as image's_____   CO4 -R

    (a) pixels   (b) frames   (c) objects   (d) coordinates

5. Full color image is a _____.   CO5- R

    (a) 20 bit image   (b) 24 bit image   (c) 28 bit image   (d) 32 bit image

PART – B (5 x 3= 15Marks)

6. Define digital filter.   CO1-U

7. Define fast fourier transform.   CO2-U

8. When does a global valley appear in a histogram?   CO3-U

9. What is a median corner detector?   CO4-U

10. List the basic image compression methods.   CO5-U

PART – C (5 x 16= 80 Marks)

11. (a) Consider a digital image with the following description. Find   CO1- U   (16)
        Pr(rk) and perform histogram equalization on the image. Draw the
        histograms before and after equalization.

r_k	n_k
r0 =0	780
r1=1	1013
r2=2	556
r3=3	670
r4=4	29
r5=5	245
r6=6	32
r7=7	171

Or

    (b) Explain the noise models in image processing with neat diagrams.   CO1- U   (16)

12. (a) Explain subband decomposition in detail.   CO2- U   (16)

Or

    (b) Explain wavelet decomposition of images in detail.   CO2- U   (16)

13. (a) Explain different thersholding methods in detail..   CO3-U   (16)

Or

    (b) Explain the steps involved in canny edge detection with neat   CO3-U   (16)
        diagrams.

14. (a) Discuss the Gray scale morphology in detail.   CO4 -Ana   (16)

Or

    (b) Discuss the role of gray scale co-occurrence matrices in texture   CO4 -Ana   (16)
        analysis.

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15. (a) Discuss color transformation techniques in detail. CO5- U (16)

Or

(b) Explain LZW and Golomb coding in detail. CO5-U (16)

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