



Final Exam / 2017-2018

Note1: Answer five questions only.

Note2: Each Question has (20) marks.

Q1// (A) Match the elements in column (A) with its dominant application represented by elements of column (B):

A	B
1. Image segmentation	a. Archiving
2. Gamma ray	b. Radar
3. Radio band	c. Nuclear medicine
4. Image compression	d. Face detection
5. Gray level slicing	e. MRI
	f. Features extraction

(B) What are the meaning of the following abbreviations?

MRI – OCR – JPEG – TIFF – RIO

Q2// Compare between the following:

1. Lossy & Lossless compression techniques.
2. Spatial and gray-level resolution.
3. Raster and vector image.

Q3// Answer the following:

1. List the applications of UV images?
2. Image shrinking is accomplished by taking groups of pixels that are spatially adjacent and mapping them to one pixel. What are the ways used to achieve image shrinking?
3. What do you mean by dynamic range of an image? How it affect an image?
4. What do you mean by noise and what are the reasons causing it?

Q4// (A) Draw the system model of image analysis.

(B) For the following image, answer the following questions:

1. Apply median filter to remove pepper noise.
2. On the result of branch (A) apply zooming using First-Order Hold method.
3. On the result of branch (B) apply histogram stretching.

$$f = \begin{bmatrix} 255 & 255 & 83 \\ 94 & 45 & 0 \\ 0 & 255 & 52 \end{bmatrix}$$

Q5// Apply the Forward Haar Wavelet Transform (FHWT) and the Inverse Haar Wavelet Transform (IHWT) on the following 4×4 image matrix:

$$\begin{bmatrix} 100 & 50 & 60 & 150 \\ 20 & 60 & 40 & 30 \\ 50 & 90 & 70 & 82 \\ 74 & 66 & 90 & 58 \end{bmatrix}$$

Q6// Write a Matlab script to:

1. Rotate the image 270°.
2. Generate a mirror for the image.
3. Perform Arithmetic multiplication between the original, rotated, and mirrored one.



رئيس القسم

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Good Luck



مدرسة المادة

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