Benha University
Faculty of Engineering- Shoubra
Geomatics Engineering Department
Third Year

Mid-Term Exam
Date: Nov., 2018
Computer Applications
Duration : 1.0 hours

- Assume any missing data if necessary
- No. of questions:1 & Total marks 10

(A)

Question1   (10 marks)

Given a two Google Earth images (A) since 2010 and (B) is up to date for the Faculty of Engineering at Shoubra with (1064,1800,3) dimensions in the work space and a registered scanned map for the same area.

a. Register image (A) using affine method and bicubic resampling and image (B) using Similarity method and linear resampling? (2)
b. Divide image (A) to two halves vertically? (1)
c. Detect the edges from the resulted left half image using Sobel filter then convert the result image to black and white format? (2)
d. Remove the blurring from the resulted right half image using mean filter? (1)
e. Resize the resulted right half image to have (1400 1600) dimensions with bilinear resampling? (1)
f. Rotate the resulted left and right half images with 90 degrees and conecate them horizontally? (1)
g. Adjust image (B) using histogram equalization then increase its brightness 2 times? (1)
h. Detect the changes between the two images A and B by subtracting them? (1)

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(B)

Question1   (10 marks)

Given a two Google Earth images (A) since 2010 and (B) is up to date for the Faculty of Engineering at Shoubra with (1600,1600,3) dimensions in the work space and a registered scanned map for the same area.

a. Register image (A) using local weighted mean method and nearest resampling and image (B) using Piece wise linear method and bicubic resampling? (2)
b. Divide image (A) to two halves horizontally? (1)
c. Detect the edges from the resulted upper half image using Prewitt filter then convert the result image to gray scale format? (2)
d. Remove the noise from the resulted lower half image using median filter? (1)
e. Resize the resulted lower half image to have (1200 1800) dimensions with bicubic resampling? (1)
f. Rotate the resulted upper and lower halves images with 45 degrees and conecate them vertically? (1)
g. Adjust image (B) using adaptive histogram equalization then increase its brightness 3 times? (1)
h. Detect the changes between the two images A and B by dividing them? (1)