Noise reduction is obtained by blurring the image using smoothing filter.
a) True
b) False

What is the output of a smoothing, linear spatial filter?
a) Median of pixels
b) Maximum of pixels
c) Minimum of pixels
d) Average of pixels

Smoothing linear filter is also known as median filter
a) True
b) False

Which of the following is the primary objective of sharpening of an image?
a) Blurring the image
b) Highlight fine details in the image
c) Increase the brightness of the image
d) Decrease the brightness of the image

In spatial domain, which of the following operation is done on the pixels in sharpening the image?
a) Integration
b) Average
c) Median
d) Differentiation

The spatial coordinates of a digital image (x,y) are proportional to:
a) Position
b) Brightness
c) Contrast
d) Noise

What is pixel?
a) Pixel is the elements of a digital image
b) Pixel is the elements of an analog image
c) Pixel is the cluster of a digital image
d) Pixel is the cluster of an analog image

The number of grey values are integer powers of:
a) 4

b) 2
c) 8
d) 1

A pixel p at coordinates (x, y) has neighbors whose coordinates are given by:
(x+1, y), (x-1, y), (x, y+1), (x, y-1)
This set of pixels is called _____
a) 4-neighbors of p
b) Diagonal neighbors
c) 8-neighbors
d) None of the mentioned

For Image Enhancement a general-approach is to use a function of values of f (input image) in a predefined neighborhood of (x, y) to determine the value of g (output image) at (x, y). The techniques that uses such approaches are called _____
a) Contouring
b) Contrast stretching
c) Mask processing
d) None of the mentioned

What is/are the resultant image of a smoothing filter?
a) **Image with reduced sharp transitions in gray levels**
b) Image with high sharp transitions in gray levels
c) None of the mentioned
d) All of the mentioned

The response for linear spatial filtering is given by the relationship _____
a) Difference of filter coefficient's product and corresponding image pixel under filter mask
b) Product of filter coefficient's product and corresponding image pixel under filter mask
c) **Sum of filter coefficient's product and corresponding image pixel under filter mask**
d) None of the mentioned

While performing the median filtering, suppose a 3*3 neighborhood has value (10, 20, 20, 20, 15, 20, 20, 25, 100), then what is the median value to be given to the pixel under filter?
a) 15
b) **20**
c) 100
d) 25

The objective of sharpening spatial filters is/are to _____
a) Highlight fine detail in an image
b) Enhance detail that has been blurred because of some error
c) Enhance detail that has been blurred because of some natural effect of some method of image acquisition
d) **All of the mentioned**

Which of the following fact(s) is/are true about sharpening spatial filters using digital differentiation?
a) Sharpening spatial filter response is proportional to the discontinuity of the image at the point where the derivative operation is applied
b) Sharpening spatial filters enhances edges and discontinuities like noise
c) Sharpening spatial filters deemphasizes areas that have slowly varying gray-level values
d) **All of the mentioned**

Which of the following is a second-order derivative operator?
a) Histogram
b) **Laplacian**
c) Gaussian
d) None of the mentioned

Which of the following filter(s) results in a value as average of pixels in the neighborhood of filter mask?
a) Smoothing linear spatial filter
b) Averaging filter
c) Lowpass filter
d) **All of the mentioned**

What does Image Differentiation enhance?
a) **Edges**
b) Pixel Density
c) Contours
d) None of the mentioned

Closing is represented by
A .B
A+B
A-B
AxB

Opening with rolling SE
   a) sharps
   b) shrinks
   c) **smooths**
   d) deletes

Structuring elements runs over image's
rows
columns
edges
every element

SE having size d/4 when eroded with image of size d, shrinks the image by size
d/2
d/3
d/4
d/8

SE having size d/4 when dilated with image of size d, thickens the image by size
d/2
d/3
d/4
d/8

Dilation followed by erosion is called
opening
closing
blurring
translation

Reflection and translation of the image objects are based on
pixels
frames
structuring elements
coordinates

Opening smooths the image's

pixels
lines
contour
boundary

Structuring elements have origins at
top left
top right
center
bottom left

With dilation process images get
thinner
shrinked
thickened
sharpened

Erosion followed by dilation is called
opening
closing
blurring
translation

Fully containment of the SE in an image is required in
erosion
dilation
opening
closing

Hit-or-miss transformation is used for shape
removal
detection
compression
decompression

Mathematical morphology is a
set theory
logic diagram
graph
map

Opening is represented by
A o B
A+B
A-B
AxB

A o B is the subset of
A
B
−A
−B

Dilation is used for
bridging gaps
compression
decompression
translation

(AoB)oB is equal to
A .B
A+B
A o B
AxB