Image Analysis and Processing

1. What has been developed to detect and extract specific anatomical objects in images?
    a. Simple algorithms
    b. Advanced algorithms
    c. Segmentation algorithms
    d. Processing algorithms
2. True or false. The field of image processing and analysis is a complex branch of science that lies at the intersection of applied mathematics, computer science, physics, statistics, and biomedical sciences.
    a. True
    b. False
3. What is the most important limitation of image processing?
    a. Processing is only as fast as the computer
    b. Processing cannot increase the amount of information available in the input image
    c. Image noise is a continual problem
    d. Applying mathematical processes is very difficult
4. Image processing is always limited by the _____ of the input data.
    a. Volume
    b. Complexity
    c. Quality
    d. Source
5. What is an operation that changes the observable quality of an image in terms of resolution, contrast and noise?
    a. Resampling
    b. Edge detection
    c. Filtering
    d. Processing
6. What is a very simple example of a spatial filter?
    a. Mean filter
    b. Element filtering
    c. Noise filtering
    d. Contrast filtering
7. Mean filtering is an example of an image _____ operation.
    a. Smoothing
    b. Enhancing
    c. Brightening
    d. Shaping
8. What filter is a low pass filter that is not affected by the ringing artifact?
    a. Median filter
    b. Gaussian filter
    c. Mean filtering
    d. Digital filtering
9. The median filter is useful for removing _____.
    a. Low frequencies
    b. High frequencies
    c. Impulse noise
    d. Edges

10. True or false. The disadvantage of median filtering is that it **cannot** remove important features, such as thin edges.
    a. True
    b. False
11. What components are removed when an image is smoothed?
    a. High-frequency components
    b. Low-frequency components
    c. Shaping components
    d. Edging components
12. Edge detection algorithms search for _____ in images automatically.
    a. Noise
    b. Low-frequencies
    c. High-frequencies
    d. Edges
13. Some structures in medical images have very _____ shapes.
    a. Characteristic
    b. Individual
    c. Irregular
    d. Different
14. What is a discontinuity in the image intensity?
    a. Noise
    b. Mottle
    c. Edge
    d. Shaping