

## Written Examination – Module 2

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Duration: 30 mins.

Date: 20/04/2009

*Guideline: Keep your answers short. Do not use more than two paragraphs for each answer.*

1. Consider an image with an intensity histogram with a bi-modal distribution such as the one in Figure 1. Propose one way to automatically obtain a threshold value that is robust against global illumination changes.

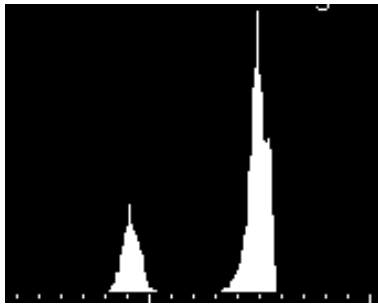


Figure 1

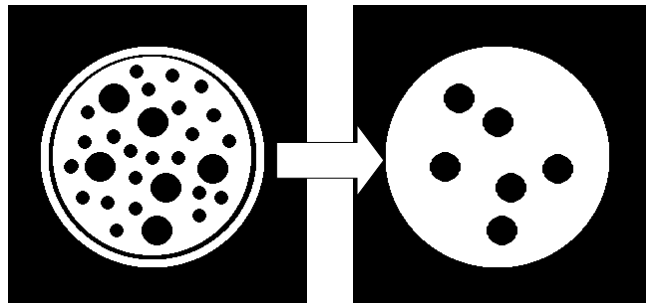


Figure 2

2. Identify the morphological filtering operation applied in Figure 2. Briefly describe its algorithm.
3. Describe a typical background subtraction algorithm for foreground/background segmentation. What are its typical assumptions regarding the imaging technology and the sensed scene?
4. Describe the *k-means clustering* algorithm.