

Name: \_\_\_\_\_

**Quiz - 1**  
**BIOM 693 - Advanced Biometrics**

**Total points: 30**

**Date: 28 February 2006**

**Please read this first:**

- This is an in-class, closed-book quiz consisting of 4 questions. ☺**
- In order for your quiz to be graded you will have to turn in your solutions by 12:15 pm.**
- You are not permitted to engage in any kind of discussion during the quiz.**
- If a question seems ambiguous, state your assumption and proceed to solve it.**
- An act of academic dishonesty will fetch you a 0 in the quiz. ☹**

1. [12 points] Describe in brief four factors that impact the quality of a fingerprint image.

2. [8 points] Consider two feature vectors  $f_1 = (3, 9, 8, 7, 4)$  and  $f_2 = (5, 1, 6, 1, 2)$ . Compute the similarity/dissimilarity between  $f_1$  and  $f_2$  using the (a) Euclidean distance, (b) Manhattan distance, (c) Chessboard distance, and (d) Cosine measure.

3. [5 points] What is the fundamental difference between verification and identification? Explain with a brief example.

4. [5 points] In the context of biometrics, what is the difference between intra-class variations and inter-class variations. Explain with an example.