CSC 499/539 Advanced Information Security
Spring 2013
Instructor: Dr. Natarajan Meghanathan

Sample Questions on Module 11 – Biometrics for Information Security

1) What are the three means by which people are normally authenticated (identified or verified)? What are their pros and cons? Give an example for each.
2) Define biometrics. What are the two commonly used classes of biometric identifiers? Give examples for each.
3) Explain the two modes (identification vs. verification) of use of a biometric system. Give at least two examples for each.
4) Draw a basic block diagram of a biometric system and explain its different components?
5) What is Hamming distance? In what context is it used in a biometric system?
6) Explain the terms 'False Accept Rate' and 'False Reject Rate' in the context of biometric systems. What is the tradeoff between the two?
7) Give examples to illustrate for why would there be a non-zero failure to enroll rate for biometric systems.
8) What is meant by template capacity? What is its maximum value for a n-bit biometric system and give two reasons why the actual value is typically less than this maximum value?
9) What is cancelable biometrics? What is its advantage over traditional biometrics systems?
10) What is the difference between "print pattern" and "minutia points"? Explain the different types of print patterns and minutia points used in fingerprint recognition.
11) What is the "Live-tissue verification problem" with biometric systems? Explain with an example.
12) Which biometric system is the most preferred choice for "Mass Surveillance"? Why?

13) Explain the suitability of the following biometric identifiers with respect to these parameters:
Biometric identifiers: Face, Fingerprint, Hand geometry, Iris, Hand signature, Voice
Parameters: Universality, Distinctiveness, Permanence, Collectable, Performance, Acceptability, No circumvention

14) Which of these is/are desirable for biometric systems and why:
a) Interclass variations b) Interclass similarities c) Intraclass variations and d) Intraclass similarities

15) What are some of the characteristic advantages of multi-biometric systems vis-à-vis single-biometric systems?
16) Explain the two modes of operating multi-biometric systems? What are the pros and cons of each?
17) What are the four levels of fusion of multi-biometric systems? Explain each of them using appropriate block diagrams.