มหาวิทยาลัยสงขลานครินทร์

คณะวิศวกรรมศาสตร์ ภาควิชาวิศวกรรมคอมพิวเตอร์

การสอบไล่ปลายภาคการศึกษาที่ 2 **ประจำปีการศึกษา 2546**

วันที่ 18 กุมภาพันธ์ 2547 **เวลา 13.30-16.30 น**

วิชา 240-526 Computer and Information Systems Security ห้องสอบ R200

ไม่อนุญาตให้นำเอกสารเข้าในห้องสอบ

1. Biometric recognition (10 marks)
1.1.Explain and give examples of physiological and behavioral inputs for a biometric recognition.
1.2.Explain advantages of biometric recognition for authentication compared with conventional practices.
1.3.Compare characteristics of a verification biometric systems and an identification system .
1.4.Explain characteristics of an on-line and off-line biometric recognition system in terms of enrollment phase and recognition phase.
1.5.Explain a positive or a negative mode of a biometric recognition system .

2.Explain how biometric applications can be classified according to the following characteristics: (10 marks)
2.1. cooperative versus non-cooperative,
2.2. overt versus covert,
2.3. habituated versus non-habituated,
2.4. attended versus non-attended,
2.5. standard versus non-standard operating environment,
2.6. public versus private.

3 Biometric characteristics.(10 marks)
3.1 Explain requirements of any human physiological and/or behavioral characteristics that can be used as a biometric identifier to recognize a person :
-universality,
-distinctiveness,
-permanence,
-collectability,

3.2Explain how the following issues affect a practical biometric system design; performance, acceptability, and circumvention.

3.3.Explain characteristics of the following biometrics;
3.3.1. Face
3.3.2. Infrared thermograms of face, hand, and hand vein
3.3.3. Gait:
3.3.4.Hand and finger geometry
3.3.5. Iris
3.3.6.Retinal scan

4.Explain the following terms with reference to biometric system errors: (10 marks)
4.1False Match Rate (FMR)
4.2False Non-Match Rate (FNMR)
4.3Equal-Error Rate (EER)
4.4.ZeroFNMR
4.5.ZeroFMR
4.6.Failure to Capture (FTC)
4.7Failure to Enroll (FTE)
4.8.Failure to Match (FTM)

5.Fingerprints.(10 marks)
5.1Explain the following acquisition of a fingerprint image:
off-line mode, livescan mode, and latent fingerprint.
5.2Explain the two prominent ridge characteristics: ridge termination and ridge bifurcation
5.3Explain the three-classes of categorization of fingerprint matching approaches: correlation-based matching, minutiae-based matching, and ridge feature-based matching
5.4.Give three examples of applications of fingerprint recognition systems for each of the following classes of applications
-Forensic Applications
-Government Applications, and
-Commercial Applications

6 Describe the five security subsystems of a security system model. (10 marks)
6.1Security audit subsystem;
6.2Solution integrity subsystem;
6.3Access control subsystem;
6.4Information flow control subsystem;
6.5.Identity or credential subsystem;

7.Denial-of-Service(DoS) attacks (10 marks)
7.1.Explain the following DoS attacks.
-Smurf,
-TCP SYN
-UDP
-TCP
-Distributed Denial of Service (DDoS)
7.2.Explain e-business security checklist

8 Ethical hacking(10 marks)
8.1What is ethical hacking?
8.2.Who are ethical hackers?
8.3.Explain how the following tests are used to simulate systems attacks in ethical hacking
-Remote network.
-Remote dial-up network.
-Local network.
-Stolen laptop computer.
-Social engineering.
-Physical entry.

9. Business security patterns (10 marks)
9.1. Explain the five major business security patterns.

9.2 Explain the two sub-categories within Web presence:
-Isolated from core business
-Integrated with core business:
9.3. Explain the four sub-categories for Business-to-Consumer(B2C):
-Store Front
-Subscription-Based Services
-Purpose Optimized Devices
-Employee-to-Business

10. Web services security(10 marks)
10.1In an open security service model for Web services, describe interfaces for security services in terms of:
- data formats
- policy information
- messaging

10.2. Describe the 3 basic security technologies that are being adopted as standards for web services:
-XML Digital Signature
-Security Assertion Markup Language(SAML)
-XML Encryption