ECAM
BRUSSELS ENGINEERING SCHOOL

Fall 2019
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I5020 Computer Security

Quizz 6: User authentication

This assessment evaluates the following competencies:

- *CS003 – Identify weaknesses in a computer system or infrastructure and propose solutions*
- *CS201 – Discuss about general design principles for protection mechanisms*
- *CS203 – Understand hardware protections that can be installed on a computer system*
- *CS204 – Discuss about the differences and importance of authentication and access control*
- *CS401 – Identify vulnerabilities in a system and propose countermeasures for them*
- *CS006 – Identify residual risks that come from a countermeasure*

Three affirmations are given for the five first assessed competencies. For each of them, you have to decide whether it is true or false. To get a star for the competency, you must have the correct answer for the three affirmations.

CS003	**True**	**False**
A password manager can be used by users to prevent them writing down passwords.	☐	☐
Only relying on voice recognition for user authentication is a strong secure choice.	☐	☐
Having salts in clear in password files speeds up dictionary attacks dramatically.	☐	☐

CS201	**True**	**False**
Several user authentication methods should be combined to authenticate users on a system.	☐	☐
Encrypting the password database stored on a computer increases its integrity.	☐	☐
User authentication is the first line of defence in computer security.	☐	☐

CS203	**True**	**False**
Fingerprint-based authentication is very accurate and has a very low implementation cost.	☐	☐
A compromised smart card reader is a vulnerability for the confidentiality of the system.	☐	☐
A weakness of tokens to authenticate a user is that they can be stolen, forged or lost.	☐	☐

CS204	**True**	**False**
Access control can only be implemented if user authentication is possible.	☐	☐
In the identification phase of user authentication, he/she presents his/her (user, password) pair to the system he/she wants to access.	☐	☐
Password-based user authentication is the best approach to use which suffers from only few vulnerabilities.	☐	☐

For the two last assessed competencies (CS401 and CS006), you have to write down two kinds of attacks that are possible on passwords, propose one countermeasure for each of them and identify the residual risk of the countermeasure. Justify your answer.

Attack 1

Attack 2