

Name:

Information Assurance: Homework 5

Due October 17, 2007

1. Consider the Clark-Wilson and Biba strict integrity models.
 - a. What does Clark-Wilson provide that Biba does not?
 - b. What does Biba provide that Clark-Wilson does not?
 - c. If you were designing a high integrity system, which integrity model do you think would give you the best guidance and why?
2. If a trusted OS only provides weak tranquility, can we still say it implements a mandatory access control (MAC) policy? Why or why not?
3. Given the security levels: $W > X > Y > Z$, and the categories A, B, and C, specify the accesses allowed (read, pure-write or append, read-write) under the Bell-LaPadula model. Assume DAC allows all access.
 - a. Andrew at $W:\{\}$ and Document at $Y:\{\}$
 - b. Beverly at $Y:\{A,B,C\}$ and Document at $Z:\{B\}$
 - c. Clarence at $W:\{A,B\}$ and Document at $Y:\{B,C\}$
 - d. Darrin at $Y:\{A,C\}$ and Document at $Y:\{A,C\}$
 - e. Eleanor at $Z:\{\}$ and Document at $W:\{C\}$
4. Consider the access allowed with the labels above interpreted as integrity levels under the strict Biba integrity model.
 - a. Andrew at $W:\{\}$ and Document at $Y:\{\}$
 - b. Beverly at $Y:\{A,B,C\}$ and Document at $Z:\{B\}$
 - c. Clarence at $W:\{A,B\}$ and Document at $Y:\{B,C\}$
 - d. Darrin at $Y:\{A,C\}$ and Document at $Y:\{A,C\}$
 - e. Eleanor at $Z:\{\}$ and Document at $W:\{C\}$
5. This question works with the list of products evaluated by the Common Criteria <http://www.commoncriteriaportal.org/public/expert/index.php?menu=8>. In particular, you will be looking at products “Check Point VPN-1/FireWall-1 NGX “ and “IBM AIX 5L for POWER V5.3, Technology level 5300-05-02 with Argus Systems Group PitBull Foundation Suite 5.0 and optional IBM Virtual IO Server (VIOS) Version 1.3”
 - a. Does the security target follow a protection profile (PP)? If so, what PP?
 - b. If it follows a PP, does it specify any additional security functional requirements? If so, list one of the additional requirements.
 - c. If it does not follow a PP, list two of the security functional requirements from the security target.
 - d. What EAL was the product was certified at?
 - e. Where there any extensions to a standard EAL? If so what?

Name:

- f. What EAL was the PP (if any) certified at?
- g. Which company was the sponsor for the certification?
- h. What is the highest level certification you see in the list?