Pampanga State Agricultural University
College of Engineering and Computer Studies
Department of Computer Studies

IAS102-Information Assurance and Security 2

Midterm Learning Activity No. 3
Introduction to System Integration and Architecture

Name:	
Course, Year & Section:	
Date Submitted:	

Learning Assessment – Introduction to System Integration and Architecture

Part A – Multiple Choice. Choose the best answer by writing the correct letter. (1 point each)

_____1. What is the main purpose of **system integration**?
a. To make applications run faster
b. To connect different systems and make them work together
c. To replace legacy systems
d. To prevent users from accessing multiple systems

_____2. Which type of integration ensures that all connected systems access the same, consistent, real-time data?
a. Process Integration
b. Data Integration
c. API Integration
d. Middleware

_____3. Which **security principle** states that users should only be given the minimum level of access needed to perform their job?
a. Defense in Depth
b. Separation of Duties
c. Least Privilege
d. Fail-Safe Defaults

_____4. In the **Bell-LaPadula model**, which of the following is TRUE?
a. No Write Up, No Read Down
b. No Read Up, No Write Down
c. No Write Down, No Read Up
d. Both b and c

_____5. Which of the following is an example of **Horizontal Integration**?
a. Sensors reporting to controllers, which send data to ERP
b. University enrollment, library, and finance systems connected via ESB
c. A bank clerk and manager approving a transaction separately
d. Using an ERP system to manage HR and accounting

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Part B – True or False. Write the word True if the statement is correct otherwise Failed. (1 point each)

_____6. Process Integration ensures that workflows are coordinated across multiple systems.
_____7. Zero Trust Architecture assumes that once you're inside a network, you can be trusted.
_____8. Middleware acts as a "translator" or "glue" between different applications.
_____9. In the Biba Model, the rule "No Write Up" means higher-trust users cannot modify lower-level data.
_____10. Legacy systems are easy to integrate with modern cloud applications.

Part C – Essay. Discuss the following briefly. (10 points)

11. Explain the difference between **Defense in Depth** and **Fail-Safe Defaults**. Give a real-world example for each. (3pts)
12. Why is **security in integration** important when connecting systems through APIs? Give one example of what could happen if it is ignored. (3pts)
13. Compare **Horizontal Integration** and **Vertical Integration**. Which is more flexible in a growing university system, and why? (4pts)

Part D – Case/Diagram Activity (5 points each)

14. **Case Scenario**

    PSAU is building a new **Student Information System** that integrates enrollment, finance, and library systems.

    - Draw a simple 3-layer diagram (Database, Application, Web).
    - Show where you would apply **Defense in Depth** security measures (firewall, encryption, IDS).

15. **Case Analysis**

    A hospital integrated its patient records system with an external pharmacy ordering system. Later, hackers exploited weak security in the pharmacy system to steal patient data.

    - Identify which **integration challenge** was violated.
    - Suggest at least **two security measures** that could have prevented the breach.

*Note: Save your work as your **Lastname, Firstname-Section MLActNo3.***