Reviewer 1: (INTRODUCTION TO SIA)

System Overview:

Definition:

A system is a set of interconnected components working together to achieve a common goal.

Importance:

Crucial for understanding integration and architecture in IT systems.

System Characteristics:(I. D. P. O)

- **Interconnected Components**: Components depend on each other.
- **Defined Boundaries:** Clear separation from the environment.
- **Purpose**: Specific goal or objective.
- **Inputs & Outputs**: Systems take inputs, process them, and generate outputs.

Types of Systems:(P. A. O. C)

- **Physical Systems**: Hardware, networking infrastructure.
- **Abstract Systems**: Software applications, data models.
- **Open Systems**: Interacts with external environments (e.g., web services).
- **Closed Systems**: Isolated from external influences (e.g., standalone applications).

IT Systems:(C. I. E)

- **Computer Systems**: Hardware, software, and networks.
- **Information Systems**: Manages and processes data.
- **Embedded Systems**: Systems within other devices (e.g., IoT).

Types of Integration:(V. H. S. C)

1. **Vertical Integration**: Connects different levels of IT architecture within an organization.
   Example: Automotive industry (from raw material to retail).
2. **Horizontal Integration**: Links systems operating at the same level.
   Example: ERP system integration across different departments.
3. **Star Integration**: Uses a central hub to integrate systems.
   Example: CRM as a central hub for multiple systems.
4. **Common Data Format** (**CDF**): Standardizes data exchange between systems.
   Example: Healthcare systems using HL7 standards.

Benefits of System Integration: (E. I. R.)

- Enhances efficiency.
- Improves communication and data sharing.
- Reduces redundancy.

Challenges:(C. L. S. C. H. M.)

- Compatibility issues.
- Lack of Standardization
- Security risks.
- Cultural and Organizational Differences
- High Costs and Resource Allocation
- Maintenance and Scalability Issues

Multiple Choice:

1. Which of the following best defines a system?

   a. A collection of hardware components
   b. A set of interconnected components working to achieve a goal
   c. A group of isolated processes
   d. An independent unit that functions alone

2. What is the main purpose of system integration?

   a. To create isolated systems
   b. To improve communication and efficiency between different systems
   c. To decrease the number of components
   d. To increase redundancy in data processing

3. What type of system interacts with external environments?

   a. Closed system
   b. Abstract system
   c. Open system
   d. Physical system

4. Which type of integration uses a central hub to connect systems?

   a. Vertical integration
   b. Horizontal integration
   c. Star integration
   d. Common Data Format (CDF) integration

5. Which IT system primarily manages and processes data?

   a. Computer system
   b. Information system
   c. Embedded system
   d. Data network

Identification:

1. A system that does not interact with external environments is called a _____.
2. The type of system integration that consolidates systems at the same level of IT architecture is called _____.
3. _____ refers to the communication pathways that connect system components.
4. The method of standardizing data exchange between systems using universal data formats is called _____.
5. A _____ system is embedded within other devices and specializes in specific functions.

Modified True or False:

1. True or False: Vertical integration links systems operating at the same level of the IT architecture.

   - If false, modify: Vertical integration links systems at different levels of IT architecture.

2. True or False: A physical system includes software applications and data models.

   - If false, modify: A physical system includes hardware and networking infrastructure.

3. True or False: Common Data Format (CDF) integration helps in improving data consistency across systems.

   - If false, modify: CDF integration standardizes data for interoperability and data consistency.

4. True or False: Embedded systems are designed to manage and process large amounts of data.

- If false, modify: Embedded systems are specialized systems within devices.

5. True or False: Open systems are isolated from external influences.

- If false, modify: Closed systems are isolated from external influences.

Enumeration:

1. Enumerate the characteristics of a system (4 items):

- Interconnected Components
- Defined Boundaries
- Purpose (Objective)
- Inputs and Outputs

2. List the types of IT systems (3 items):

- Computer Systems
- Information Systems
- Embedded Systems

3. Enumerate the challenges in system integration (6 items):

- Compatibility issues
- Lack of standardization
- Security risks
- Cultural and organizational differences
- High costs and resource allocation
- Maintenance and scalability issues

4. List the benefits of system integration (3 items):

- Enhanced operational efficiency
- Improved communication and data sharing
- Reduced redundancy and increased performance

5. Enumerate the components of an IT system (4 items):

- Hardware
- Software
- Data
- Network