

# FBLA HS Management Information Systems\*

## Systems Design and Analysis (25 test items)

1. Describe typical phases of the Systems Development Life Cycle
2. Discuss methods for gathering and analyzing system requirements
3. Discuss the Agile methodology for software and project management
4. Discuss the Waterfall model of software and project management
5. Determine appropriate features for a new system based on gathered requirements
6. Describe the use of feasibility studies for financial, technical, and organizational analysis
7. Describe terms related to system design (e.g., input, output, controls, procedures)
8. Distinguish between validation and verification of a system
9. Describe the roles of stakeholders, end users, managers, and developers in system development
10. Discuss workflow artifacts used in system design and analysis (e.g., dataflow diagrams, entity relationship diagrams, class diagrams)

## Object Oriented Programming Concepts (15 test items)

1. Describe features of object-oriented programming (OOP) languages (e.g., classes, objects, libraries)
2. Explain how business requirements can be translated into classes and functions
3. Describe key features of object-oriented programming (e.g., encapsulation, abstraction, polymorphism, inheritance)
4. Discuss the use and creation of libraries for software development
5. Distinguish between classes, objects, methods, and attributes
6. Identify modern OOP languages and frameworks
7. Analyze the benefits and drawbacks of OOP

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\* Sources: These learning outcomes are based on content from the IS2020 A Competency Model for Undergraduate Programs in Information Systems, What is MIS (Management Information Systems)? Degree Guide, and Management Information Systems.

## Data and Information Management (15 test items)

1. Translate simple user stories and requirements into SQL statements
2. Describe terms related to relational database structure (e.g., relations, tuples, fields, records, keys)
3. Evaluate database schemas based on business requirements
4. Describe the importance of data redundancy
5. Describe best practices for data security and integrity (e.g., encryption, access control)
6. Describe NoSQL databases
7. Discuss the pros and cons of data storage methods (e.g., local, cloud, hybrid)
8. Discuss the use of structured, unstructured, and semi-structured data for business intelligence and decision making
9. Describe the use of Online Analytical Processing (OLAP)

## IT Project Management (15 test items)

1. Describe the use of Agile principles in information systems development
2. Describe the processes of Scrum methodology for managing information systems projects
3. Describe the use of Waterfall methodology in information systems development
4. Discuss Agile methodology tenants (e.g., individuals and interactions, working software)
5. Select an appropriate methodology for a software or IT project
6. Discuss the consequences of poor IT project management on budget, schedule, and performance (e.g., runaway projects)
7. Discuss the steps of the project life cycle
8. Describe the use of work products and tools for project management (e.g., kanban boards, user stories, spreadsheets)
9. Discuss the roles of end users and stakeholders in IT project development

## **IT Infrastructure (15 test items)**

1. Describe the importance of IT infrastructure to business processes
2. Describe components of IT infrastructure (e.g., hardware, software, network components)
3. Describe how cloud and virtual components contribute to IT infrastructure
4. Discuss the business value of secure IT infrastructure
5. Describe the benefits of cloud-based architecture for businesses
6. Discuss the performance and cost tradeoffs of network topologies (e.g., mesh, star, bus)
7. Identify layers of the OSI and TCP/IP model
8. Describe services that contribute to business IT infrastructure (e.g., computing platforms, telecommunications services, data management services)
9. Discuss how to avoid common IT security vulnerabilities (e.g., authentication, authorization, access control)

## **Emerging Business Technologies (15 test items)**

1. Discuss the effects of automation on businesses
2. Discuss the uses of artificial intelligence for businesses (e.g., customer support, automation, data insights)
3. Explain core characteristics of blockchain technology
4. Discuss the uses of blockchain for data security and integrity
5. Describe the Internet of Things (IoT)
6. Describe the characteristics of the cloud
7. Identify cloud-based applications and services (e.g., SaaS, IaaS, AWS, Canva)

## References

- Association for Computing Machinery. *IS2020 A Competency Model for Undergraduate Programs in Information Systems*. <https://www.acm.org/binaries/content/assets/education/curricula-recommendations/is2020.pdf>
- Coursera. *What is MIS (Management Information Systems)? Degree Guide*. <https://www.coursera.org/articles/mis>
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- Laudon, K., and Laudon, J. *Management Information Systems (Fifteenth Edition)*. <https://industri.fatek.unpatti.ac.id/wp-content/uploads/2019/03/188-Management-Information-Systems-Managing-the-Digital-Firm-Kenneth-C.-Laudon-Jane-P.-Laudon-Edisi-15-2017.pdf>
- Cohesity. *Unlocking the power of the management information system*. <https://www.cohesity.com/glossary/management-information-system/>
- Tutorials Point. *MIS – Introduction*. [https://www.tutorialspoint.com/management\\_information\\_system/management\\_information\\_system.htm](https://www.tutorialspoint.com/management_information_system/management_information_system.htm)