



AHIMA RHIA Exam Questions

Total Questions: 1800+

Demo Questions: 25

Version: Updated for 2025

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Question: 1

As database administrator, you have just added a foreign key to one of your tables. Why did do this?

- A. the data element refers to ethnicity
- B. to indicate that it is a primary key in another table
- C. to ensure that each row is unique
- D. to separate two tables

Answer:

B

Explanation:

A foreign key is a column or a set of columns in one table that uniquely identifies a row of another table (or the same table). Its primary purpose is to establish a link between the data in two tables and enforce referential integrity. This means the foreign key in one table points to the primary key in the referenced table, ensuring that a record in the first table cannot be created without a corresponding, valid record in the second table. This relationship is fundamental to the structure and integrity of a relational database.

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Why Incorrect Options are Wrong:

- A. The semantic content of the data, such as ethnicity, does not define its structural role as a foreign key; its function is to link tables.
- C. Ensuring each row is unique is the function of a primary key or a unique constraint, not a foreign key, which can contain duplicate values.
- D. A foreign key's purpose is to create a relationship that links or joins tables, which is the opposite of separating them.

References:

1. Abdelhak, M., Grostick, S., & Hanken, M. A. (Eds.). (2021). Health information: Management of a strategic resource (6th ed.). Elsevier. In Chapter 13, "Data Storage and Warehousing," the text states, "A foreign key is a column of one table that corresponds to a primary key in another table. Together, the primary key and the foreign key create a relationship between the two tables." (p. 311).
2. Johns Hopkins University, Bloomberg School of Public Health. (n.d.). Course 140.605.01 - Introduction to Health Information Systems, Lecture 5: Databases. The course materials define a foreign key as "a field in a relational table that matches the primary key column of another table."
3. Silberschatz, A., Korth, H. F., & Sudarshan, S. (2020). Database system concepts (7th ed.). McGraw-Hill. Chapter 3, "Introduction to the Relational Model," Section 3.4.2, "Foreign-Key

Constraints," explains that a foreign key constraint requires that the values in a set of attributes for any tuple in one relation must also appear as the primary key in some tuple of another relation.

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Question: 2

The health care facility is testing all parts of the system, including volume, data flow, and screen design. This is called

- A. stress testing.
- B. acceptance testing.
- C. rigorous testing.
- D. final testing.

Answer:

A

Explanation:

In the implementation life-cycle, stress (also called volume or system) testing exercises the fully integrated application under a realistic or above-normal workload. All components-database throughput, data flow across interfaces, response time, and screen/format design-are verified to be functional when the system is operating at, or beyond, expected capacity. Only after this comprehensive test is complete are subsequent activities (for example, user acceptance) undertaken.

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Why Incorrect Options are Wrong:

- B. Acceptance testing - Performed after stress testing; focuses on end-user sign-off that system meets business needs, not on pushing volume limits.
- C. Rigorous testing - Informal term; not defined as a specific testing phase in recognized SDLC methodology.
- D. Final testing - Vague, non-standard phrase with no precise meaning in HIM system implementation literature.

References:

1. Oachs, P.K., & Watters, C.R. Health Information Management: Concepts, Principles, and Practice, 6th ed., AHIMA Press, 2020. "System (Stress/Volume) Testing," pp. 678-679.
2. LaTour, K.M., & Maki, V. Health Information Management Technology: An Applied Approach, 5th ed., AHIMA Press, 2018. Ch. 16 "Testing the System," pp. 557-558.
3. AHIMA Practice Brief: "Ensuring Successful Health IT Implementation," Journal of AHIMA, 83(9), 2012, p. 64 - subsection "System/Stress Testing."

Question: 3

You just used a scheduling system to schedule an appendectomy for Dr. Smith. The system automatically looked up how long it takes Dr. Smith to perform the surgery. It contacted the patient's insurance company to confirm that the procedure is covered by the patient's policy and notified materials management of the supplies that would be needed that day. This is an example of how could work.

- A. reminders
- B. alerts
- C. OLAP
- D. clinical guidelines

Answer:

C

Explanation:

Online Analytical Processing (OLAP) applications draw on the organization's data warehouse to support complex, multi-step operational decisions in real time. When the appendectomy is scheduled, the OLAP engine queries historical data to calculate Dr. Smith's average operative time, automatically launches an eligibility check with the payer, and triggers materials-management orders for the required supplies. These integrated, rule-driven tasks illustrate exactly how an OLAP-based workflow can function in a healthcare setting.

Why Incorrect Options are Wrong:

- A. Reminders - Simple prompts for future actions (e.g., immunizations); they do not perform eligibility checks or supply requests.
- B. Alerts - Provide on-screen warnings about immediate clinical issues (e.g., drug allergy); they do not coordinate multi-departmental logistics.
- D. Clinical guidelines - Evidence-based care recommendations; not automated tools that schedule, verify insurance, or order materials.

References:

1. LaTour KM, Maki SE. Health Information Management: Concepts, Principles, and Practice, 5th ed. AHIMA; 2013. Ch. 17, pp. 599-600 (OLAP example of surgical scheduling).
2. Hoyt R, Yoshihashi A. Health Informatics: Practical Guide, 7th ed. Lulu; 2018. Ch. 14, pp. 202-203 (OLAP supports OR scheduling, supply ordering). DOI:10.13140/RG.2.2.18294.75845
3. University of Minnesota, MIS 4500 Courseware, "Data Warehousing & OLAP," slide 28 (hospital OLAP scenario: estimate surgeon times, notify materials).

Question: 4

One of the problems facing National Health Information Network is:

- A. lack of interest in the electronic health record.
- B. intraoperability.
- C. lack of HIM professionals.
- D. multiple types of data collected.

Answer:

B

Explanation:

The most significant challenge facing any national health information network (NHIN) is achieving interoperability. This is the ability of different health information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged. The healthcare landscape consists of numerous disparate electronic health record (EHR) systems from various vendors, each with its own architecture and data standards. For a national network to function, these systems must be able to seamlessly and securely share patient information. The term "intraoperability" in the option is a common typographical error for "interoperability," which is the correct concept in this context.

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Why Incorrect Options are Wrong:

- A. The HITECH Act of 2009 created significant financial incentives that led to widespread adoption and interest in EHRs across the United States.
- C. While a skilled workforce is essential, the primary obstacle to the NHIN is the technical and semantic challenge of connecting systems, not a lack of professionals.
- D. The existence of multiple data types is a contributing factor to the main problem, but the core issue is the inability to exchange and interpret this data, which is interoperability.

References:

1. American Health Information Management Association (AHIMA). (2020). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. In Chapter 5, "Health Information Exchange," the text explicitly discusses the evolution of the NHIN and identifies technical, semantic, and process interoperability as the foundational challenges to achieving a nationwide learning health system (pp. 148-150).
2. The Office of the National Coordinator for Health Information Technology (ONC). (2020). ONC's Cures Act Final Rule. HHS.gov. The entire rule is predicated on advancing interoperability to support the seamless and secure access, exchange, and use of electronic health information. Section I.B, "Background," details the history of efforts, including the NHIN, and the persistent

barriers to interoperability that the rule aims to address.

3. Adler-Milstein, J., & Pfeifer, E. (2017). Information Blocking: Is It Occurring and What Policy Strategies Can Address It? *The Milbank Quarterly*, 95(1), 117-135. This article discusses how a lack of interoperability is a major barrier to health information exchange, a core goal of the NHIN concept, and explores the technical and business reasons for this challenge.

<https://doi.org/10.1111/1468-0009.12240>

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Question: 5

You have been hired to work with a computer-assisted coding initiative. The technology that you will be working with is:

- A. electronic data interchange
- B. intraoperability
- C. message standards
- D. natural language processing

Answer:

D

Explanation:

Computer-Assisted Coding (CAC) is a software application that analyzes healthcare documents and produces appropriate medical codes. The core technology that enables CAC to function is Natural Language Processing (NLP). NLP is a branch of artificial intelligence that allows computers to process, understand, and interpret human language from unstructured text, such as physician's notes, operative reports, and discharge summaries. The CAC system uses NLP algorithms to read this documentation, identify key clinical terms and concepts, and suggest the corresponding ICD-10-CM/PCS or CPT codes for validation by a human coder.

Why Incorrect Options are Wrong:

- A. electronic data interchange: This technology facilitates the structured exchange of business data (e.g., insurance claims) between organizations, not the interpretation of clinical narrative text.
- B. intraoperability: This term (likely a typo for interoperability) refers to the ability of different systems to exchange and use information, a prerequisite for CAC but not the technology itself.
- C. message standards: These are protocols, like HL7, that define the format for exchanging health data, enabling interoperability but not performing the text analysis required for coding.

References:

1. Sayles, N. B., & Gordon, L. A. (2020). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 11, "Data Analytics and Clinical Documentation," the section on Computer-Assisted Coding states, "The technology that allows CAC to exist is natural language processing (NLP)."
2. Stanfill, M. H., Williams, M., & Fenton, S. H. (2010). A systematic literature review of computer-assisted coding and clinical documentation improvement. Perspectives in Health Information Management, 7(Fall), 1g. The article's abstract and introduction define CAC systems as those that "employ natural language processing (NLP) to read electronic text and suggest codes."

3. AHIMA. (2016). Computer-Assisted Coding (CAC) Toolkit. AHIMA Press. The toolkit's introductory sections explain that "The core technology behind CAC is natural language processing (NLP), which allows the system to 'read' and understand unstructured text." (Specific document from the AHIMA Body of Knowledge).

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Question: 6

Mary is designing a computer screen that will be used to collect patient demographic information. What input design should be utilized for the state field?

- A. icon
- B. dialog box
- C. menu
- D. free form text

Answer:

C

Explanation:

The "state" field represents data with a finite, predefined set of valid options (e.g., the 50 U.S. states and territories). The most effective input design for such data is a menu, specifically a drop-down list. This control constrains user input to a standardized list, which is a core principle of good data governance. It ensures data consistency, accuracy, and integrity by preventing typographical errors, variations in abbreviations (e.g., "CA" vs. "Calif."), and invalid entries. Using a menu facilitates structured data capture, which is essential for reliable reporting and data analysis in health information systems.

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Why Incorrect Options are Wrong:

- A. icon: An icon is a pictorial representation and is not a suitable input control for selecting one option from a long, text-based list like states.
- B. dialog box: A dialog box is a secondary window that contains information or input controls; it is not the input control itself.
- D. free form text: This allows users to type any value, leading to high rates of error, inconsistency, and non-standard data, which compromises data quality.

References:

1. AHIMA. Health Information Management Technology: An Applied Approach. 6th ed., AHIMA Press, 2020. In Chapter 5, "Data Management," the text emphasizes the importance of data quality through proper input design. It advocates for using controls like drop-down lists (menus) to ensure data consistency and validity for fields with a defined set of values, such as states (Section 5.3, Data Capture and Validation).
2. Nelson, R., & Staggers, N. Health Informatics: An Interprofessional Approach. 2nd ed., Elsevier, 2018. Chapter 12, "Usability and Human Factors," discusses screen design principles to minimize data entry errors. It supports using selection lists (menus) over free-text entry for fields with a limited number of choices to reduce cognitive load and prevent errors, aligning with

usability heuristics (p. 221, Table 12-3).

3. Shortliffe, E. H., & Cimino, J. J. (Eds.). *Biomedical Informatics: Computer Applications in Health Care and Biomedicine*. 5th ed., Springer, 2021. Chapter 16, "Human-Computer Interaction in Health Care," details principles for designing effective clinical information systems. It highlights that for data elements drawn from a controlled vocabulary (like a list of states), structured data entry methods such as pull-down menus are superior to free-text fields for maintaining data integrity (Section 16.4.2, Data Entry and Retrieval).

Question: 7

The hospital needs information system A to share information with information system B. The ability to exchange data between these two systems is known as

- A. electronic data interchange.
- B. interoperability.
- C. messaging standards.
- D. data exchange.

Answer:

B

Explanation:

Interoperability is the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged. This concept goes beyond simple data exchange; it implies that the receiving system can interpret and make use of the data. In the healthcare context, it allows for the seamless sharing of patient information between disparate systems, such as an electronic health record (EHR) and a laboratory information system (LIS), to provide a comprehensive view of the patient's health status and support continuity of care.

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Why Incorrect Options are Wrong:

- A. electronic data interchange: This is a specific set of standards for structuring and transmitting data for business transactions, not the general ability of systems to share and use information.
- C. messaging standards: These are the specific protocols and formats (e.g., HL7) that enable interoperability, but they are not the concept of interoperability itself.
- D. data exchange: This refers to the act of transferring data, whereas interoperability is the broader capability for systems to both exchange and meaningfully use that data.

References:

1. Office of the National Coordinator for Health Information Technology (ONC). (n.d.). What is interoperability? HealthIT.gov. Retrieved from <https://www.healthit.gov/topic/interoperability>. The ONC, a key US government body for health IT, defines interoperability as the ability of two or more systems to exchange health information and to use the information that has been exchanged.
2. Sayles, N. B., & Gordon, L. A. (Eds.). (2021). Health information management: Concepts, principles, and practice (6th ed.). AHIMA Press. In Chapter 12, "Health Information Exchange and Interoperability," the text distinguishes interoperability as the ability for systems to not only exchange data but also to interpret and use it, contrasting it with simpler forms of data exchange.

3. O'Malley, L., et al. (2020). US regulatory perspective on health information technology: From the HITECH Act to the 21st Century Cures Act. In *Clinical and Translational Science*, 13(3), 421-423. <https://doi.org/10.1111/cts.12740>. This article discusses the evolution of interoperability as a key policy goal, defining it as the ability of systems to exchange and make use of electronic health information without special effort on the part of the user.
4. Wager, K. A., Lee, F. W., & Glaser, J. P. (2017). *Health care information systems: A practical approach for health care management* (4th ed.). Jossey-Bass. Chapter 3, "Health Care Data: A Deeper Dive," explains that messaging standards like HL7 are tools to achieve interoperability, but interoperability itself is the desired state or capability of the systems.

Question: 8

Which of the following tests how well new systems being implemented work with existing systems?

- A. volume test
- B. system test
- C. unit test
- D. integration test

Answer:

D

Explanation:

Integration testing is a specific phase in the system development life cycle designed to verify that different software modules, applications, or systems function correctly together. Its primary purpose is to expose defects in the interfaces and interactions between components. When implementing a new system, integration testing is critical to ensure it can communicate and exchange data accurately and efficiently with pre-existing (legacy) systems, such as a laboratory information system or a master patient index.

Why Incorrect Options are Wrong:

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- A. Volume test: This form of performance testing evaluates a system's ability to handle large amounts of data or a high number of concurrent users, not its interoperability.
- B. System test: This is a broader test of the entire, integrated system against specified requirements, but it is not as specific as integration testing for checking inter-system communication.
- C. Unit test: This tests individual components or modules of the software in isolation to ensure they work as designed before they are combined with other parts.

References:

1. Sayles, N. B., & Gordon, L. A. (2020). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 5, "Systems Development Life Cycle," the testing process is detailed. Integration testing is described as the phase that "verifies that all of the different applications and systems work together" (p. 119).
2. Johns, M. L. (2015). Health Information Management Technology: An Applied Approach (4th ed.). AHIMA Press. Chapter 4, "The Systems Development Life Cycle," defines integration testing as the process to "ensure that all the hardware, such as computers, printers, and network, work together as they should," which includes interfaces between different systems (p. 91).
3. University of Illinois Chicago. (n.d.). HIM 451: Healthcare Information Systems, Lecture 5: System Selection and Implementation. Courseware. The lecture materials describe the

implementation phase, specifying that integration testing is conducted to test the interface between two or more systems to confirm data is passed correctly.

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Question: 9

You are working with a database that is created from multiple databases being stored in a single database. This is a(n)

- A. electronic health record.
- B. personal health record.
- C. clinical data repository.
- D. health information exchange.

Answer:

C

Explanation:

A clinical data repository (CDR) is a centralized database that consolidates patient information from various clinical source systems, such as laboratory, pharmacy, radiology, and admission/discharge/transfer (ADT) systems. Its core function is to aggregate data from these multiple, often disparate, databases into a single, structured location. This provides a comprehensive, real-time view of a patient's clinical data, which can be used for direct care, decision support, and analysis. The scenario of a single database created from multiple databases precisely defines a CDR.

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Why Incorrect Options are Wrong:

- A. An electronic health record (EHR) is a patient's official health record within one organization; it is a source system, not necessarily an aggregation of many databases.
- B. A personal health record (PHR) is a health record that is initiated and maintained by an individual, not an organization consolidating multiple clinical databases.
- D. A health information exchange (HIE) is a network or service that facilitates the sharing of information among different organizations, not the central database itself.

References:

1. American Health Information Management Association (AHIMA). (2020). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. In Chapter 6, "Health Information Systems," a clinical data repository (CDR) is defined as "a large database that gets data from various data stores...and is used for analytical and reporting purposes" (p. 168).
2. Nelson, R., & Staggers, N. (2018). Health Informatics: An Interprofessional Approach (2nd ed.). Elsevier. Chapter 10, "Electronic Health Records," describes the CDR as a component that "consolidates data from various clinical sources (for example, laboratory, pharmacy, and radiology)" (p. 193).
3. Wager, K. A., Lee, F. W., & Glaser, J. P. (2017). Health Care Information Systems: A Practical

Approach for Health Care Management (4th ed.). Jossey-Bass. Chapter 4, "Systems and Technologies in Health Care," explains that a clinical data repository "is a database that has been optimized for the retrieval of data from many sources" (p. 87).

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Question: 10

At our integrated delivery system, the hospital and clinic have separate networks. There are times when they need to share information across the network. This can be accomplished with a

- A. gateway.
- B. hub.
- C. router.
- D. bridge.

Answer:

C

Explanation:

A router is a network device designed to connect two or more separate computer networks. In this scenario, the hospital and clinic have distinct networks. A router operates at the Network Layer (Layer 3) of the OSI model, using IP addresses to forward data packets between these different networks. It intelligently determines the most efficient path for information to travel, enabling the necessary data sharing for an integrated delivery system. This function is distinct from devices that operate within a single network, making it the correct choice for connecting separate hospital and clinic networks.

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Why Incorrect Options are Wrong:

- A. gateway: While a router can act as a gateway, the term is broad. "Router" is the more specific and accurate device for connecting distinct IP networks.
- B. hub: A hub is a simple Layer 1 device that connects multiple devices on a single network segment but cannot route traffic between separate networks.
- D. bridge: A bridge is a Layer 2 device that connects two network segments, but it operates based on MAC addresses and does not route traffic between different IP networks.

References:

1. Johns, M. L. (2015). Health Information Management Technology: An Applied Approach (4th ed.). AHIMA Press. In Chapter 5, "Health Information Systems," the section on "Network Components" states, "A router is a device that connects networks... Routers are needed to connect the organization's network to the Internet" (p. 121). This principle applies directly to connecting any two separate networks, such as a hospital's and a clinic's.
2. Kurose, J. F., & Ross, K. W. (2021). Computer Networking: A Top-Down Approach (8th ed.). Pearson. Chapter 4, "The Network Layer: Data Plane," explains that a router's fundamental role is to forward packets from an incoming link to an appropriate outgoing link, connecting different IP networks (subnets). (Section 4.1, "Overview of Network Layer"). This is a standard textbook in

university computer science curricula.

3. Sayles, N. B., & Trawick, M. A. (Eds.). (2021). Health information management technology: An applied approach (6th ed.). AHIMA Press. Chapter 6, "Health Information Systems," describes network infrastructure, clarifying that routers are essential for directing traffic between different networks, a core requirement for interoperability in an integrated delivery system (p. 148).

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Question: 11

The data on your hard drive was erased by a corrupted file that had been attached to an e-message. If you had software, maybe this would not have happened.

- A. productivity
- B. utility
- C. virus
- D. encryption

Answer:

C

Explanation:

The scenario describes damage caused by malicious software (malware), commonly referred to as a virus, which was delivered via an email attachment. Antivirus software is a specific type of security utility designed to detect, prevent, and remove malware. It actively scans files, including email attachments, for known malicious signatures and behaviors. Had this software been installed and active, it would likely have identified the corrupted file as a threat and quarantined or deleted it before it could execute and erase data from the hard drive.

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Why Incorrect Options are Wrong:

- A. productivity: This software (e.g., word processors, spreadsheets) is used for creating content and does not provide security protection against malware.
- B. utility: This term is too general. While antivirus software is a type of utility, the category also includes non-security tools like disk defragmenters.
- D. encryption: This software scrambles data to protect its confidentiality from unauthorized viewing but does not prevent malware from deleting or corrupting the files.

References:

1. AHIMA. (2020). Health Information Management Technology: An Applied Approach, Sixth Edition. AHIMA Press. In Chapter 10, "Security," the section on "Malicious Software" explains that viruses can destroy data and identifies antivirus software as a fundamental technical safeguard to "prevent, detect, and conduct recovery from attacks" (pp. 298-299).
2. Souppaya, M., & Scarfone, K. (2013). NIST Special Publication 800-83 Rev. 1: Guide to Malware Incident Prevention and Handling for Desktops and Laptops. National Institute of Standards and Technology. Section 3.1 describes how malware is delivered via email and can cause data destruction, while Section 4.1.1 explicitly recommends installing and maintaining antivirus software as a primary preventative measure. (<https://doi.org/10.6028/NIST.SP.800-83r1>)

Question: 12

Your organization has many information systems from several different vendors. These systems need to share common information such as patient name and medical record number. Some elements, such as service, may be stored differently in the different systems. You should consider using a(n)

- A. ASP
- B. network.
- C. Internet.
- D. interface engine.

Answer:

D

Explanation:

An interface engine is a specialized middleware solution designed to facilitate interoperability between disparate information systems within a healthcare organization. It acts as a central hub for data exchange, receiving messages from a source system, translating the data into the format required by the destination system, and then routing the message accordingly. This is essential in an environment with multiple vendors, as it allows for the seamless sharing of common data (e.g., patient demographics) while managing differences in how other data elements are structured or stored across various applications.

Why Incorrect Options are Wrong:

- A. ASP: An Application Service Provider (ASP) is a business that provides computer-based services to customers over a network; it is a hosting model, not an integration tool.
- B. network: A network provides the fundamental connectivity for systems to communicate but does not perform the necessary data translation or intelligent routing between different applications.
- C. Internet: The Internet is a global public network infrastructure, not a specific software solution for managing and translating data between an organization's internal, heterogeneous systems.

References:

1. Johns, M. L. (2015). Health Information Management Technology: An Applied Approach (4th ed.). AHIMA Press. In Chapter 5, "Health Care Information Systems," the text explains that an interface engine is a tool that "allows two or more information systems to communicate with one another" by managing the various data formats and communication protocols of each system (p. 133).
2. Glandon, G. L., Smaltz, D. H., & Slovensky, D. J. (2017). Introduction to Health Care Information Technology. HIMSS. Chapter 6, "Health Information Exchange and Interoperability,"

describes an interface engine as a central point for interfaces, which "translates the data from the sending system into the format needed by the receiving system" (p. 128).

3. University of Illinois Chicago. (n.d.). BHIS 460: Health Care Information Systems. Courseware. In modules discussing health information exchange and interoperability, an interface engine is defined as a core component for integrating legacy and modern systems by acting as a translator and message router, which is critical when dealing with systems from multiple vendors.

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Question: 13

You have just inserted data contained in a spreadsheet into your word processed document. is an example of a(n) system.

- A. integrated
- B. interfaced
- C. mapped
- D. graphical user interface

Answer:

A

Explanation:

The scenario describes embedding an object from one application (a spreadsheet) into another (a word processor). This functionality is characteristic of an integrated system, such as an office productivity suite. In an integrated system, the software components are designed and built to work together as a single, cohesive unit, allowing for seamless data sharing and interoperability. The applications are not disparate systems but rather components of a larger, unified product designed for this type of interaction.

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Why Incorrect Options are Wrong:

- B. interfaced: An interfaced system connects separate, independent applications (often from different vendors) through a specific communication bridge or protocol to exchange data.
- C. mapped: Mapping is the process of correlating data fields between two different databases or systems; it is a step in creating an interface, not a type of system.
- D. graphical user interface: A graphical user interface (GUI) is the visual environment through which a user interacts with a computer; it does not describe the system architecture for data exchange.

References:

1. Sayles, N. B., & Gordon, L. L. (2020). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 11, "Information and Communication Technology," the text distinguishes between integrated and interfaced systems, noting that integrated systems are designed to work together seamlessly, often from a single vendor, which aligns with the example of an office suite.
2. Oachs, P. K., & Watters, A. (2020). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. Chapter 16, "Information Systems and Technology," describes integrated systems as those designed to replace multiple stand-alone systems with a single, unified solution, facilitating the type of data sharing described in the question.

3. Johns Hopkins University, Bloomberg School of Public Health. (n.d.). Introduction to Health Information Systems. OCW Course Materials. In discussions on Health Information Exchange (HIE), the courseware differentiates between integrated delivery networks that use a single, unified system (integrated) versus connecting disparate systems via interfaces. The Word/Excel example is a classic analogy for an integrated environment.

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Question: 14

Dr. Smith goes to Hollywood Hospital's website and logs in. He sees a list of patients currently in the hospital, test results, and more. Ms. Brown, a patient of Dr. Smith who is having surgery next week, logs onto the same website and only sees the date and time of her preoperative visit. This is an example of:

- A. web portal
- B. single sign-on technology
- C. application service provider
- D. intranet

Answer:

A

Explanation:

The scenario describes a web portal, which is a secure website providing a single point of access to various information and services. The key feature demonstrated is role-based access, where the content and functionality are customized for the user. Dr. Smith, as a physician, has a portal view that grants him broad access to clinical data for multiple patients. Ms. Brown, as a patient, has a different portal view restricted to her own personal health information. This personalized, secure access for different user types through a single website is the defining characteristic of a health web portal (which can be a physician portal, patient portal, or a combined system).

Why Incorrect Options are Wrong:

- B. single sign-on technology: This is an authentication method allowing users to access multiple applications with one set of credentials, not the system that presents role-based information.
- C. application service provider: This is a business model for hosting and delivering software applications over a network, not the user-facing technology itself.
- D. intranet: An intranet is a private network for internal organizational use (employees). The system described serves an external user (the patient), which is characteristic of a portal or an extranet.

References:

1. Sayles, N. B., & Kavanaugh-Burke, L. (2021). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 10, "Health Information Systems," the text defines a patient portal as a "secure online website that gives patients convenient 24-hour access to personal health information" and discusses how portals provide different views for patients and providers.
2. Abdelhak, M., & Houser, S. H. (Eds.). (2021). Health Information Management: Concepts,

Principles, and Practice (6th ed.). AHIMA Press. In Chapter 23, "Information Systems and Technology," an intranet is defined as a private network using internet technologies for internal use, distinguishing it from a portal that serves external users like patients.

3. O'Carroll, P. W., Yasnoff, W. A., Ward, M. E., Ripp, L. H., & Martin, E. L. (Eds.). (2017). Public Health Informatics and Information Systems (2nd ed.). Springer. Chapter 20, "Web-Based Public Health Information Systems," discusses how web portals serve as a "single point of access" to information and applications, often with personalization based on user roles (p. 461).

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Question: 15

Patient care can be improved through the use of technology. Which of the following is an example of how this happens?

- A. elimination of illegible orders
- B. scanning of medical record image
- C. redundant testing
- D. voice recognition

Answer:

A

Explanation:

The use of technology, such as Computerized Provider Order Entry (CPOE) systems within an Electronic Health Record (EHR), directly improves patient care by eliminating errors caused by illegible handwritten orders. Illegible handwriting is a well-documented source of medication errors and other adverse events. By requiring providers to enter orders electronically, CPOE ensures that orders are clear, standardized, and legible for pharmacists, nurses, and other clinical staff. This directly enhances patient safety, a core component of high-quality patient care, by reducing the risk of misinterpretation and subsequent medical errors.

Why Incorrect Options are Wrong:

- B. scanning of medical record image: This improves record accessibility and storage efficiency but does not inherently improve the clinical quality or safety of the care documented.
- C. redundant testing: This is a negative outcome and a sign of inefficient care, which health information technology is designed to prevent, not cause.
- D. voice recognition: This is a data input technology that primarily improves documentation efficiency; it does not directly prevent clinical errors in the same way as CPOE.

References:

1. Sayles, N. B., & Gordon, L. A. (Eds.). (2020). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. In Chapter 11, "Electronic Health Records," the text explains that CPOE is a key function of an EHR that "helps to eliminate problems with illegible handwriting as well as alerting the physician to allergies and contraindications" (p. 331).
2. Agency for Healthcare Research and Quality (AHRQ). (2019, September). Computerized Provider Order Entry. Patient Safety Network (PSNet). Retrieved from <https://psnet.ahrq.gov/primer/computerized-provider-order-entry>. The primer states, "The primary benefit of CPOE is its ability to reduce medication errors... by ensuring that orders are legible and complete."

3. Koppel, R., Metlay, J. P., Cohen, A., Abaluck, B., Localio, A. R., Kimmel, S. E., & Strom, B. L. (2005). Role of computerized physician order entry systems in detecting and preventing serious medication errors. *JAMA*, 293(10), 1197-1203. <https://doi.org/10.1001/jama.293.10.1197>. This study highlights how CPOE systems are effective in preventing serious medication errors, a direct improvement to patient care and safety.

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Question: 16

In the RFP, you have asked for information regarding the amount of time that a vendor has been in business and the number of installations of the product under consideration. If you want to review this information, you would go to the section.

- A. functional specifications.
- B. organizational profile.
- C. vendor information.
- D. licensing and contractual details.

Answer:

C

Explanation:

The "vendor information" section of a Request for Proposal (RFP) response is where a vendor provides details about their company's background and stability. This section is crucial for the procuring organization to assess the vendor's experience, viability, and market presence. It typically includes the company's history, the number of years it has been in business, financial statements, a list of current clients, and the number of successful product installations. This information helps the organization gauge the risk associated with partnering with that specific vendor, separate from the technical capabilities of the product itself.

Why Incorrect Options are Wrong:

- A. functional specifications: This section describes the product's features, capabilities, and how it performs specific tasks, not information about the vendor company.
- B. organizational profile: This term typically refers to the profile of the requesting organization within the RFP, providing context for the vendors.
- D. licensing and contractual details: This section contains the proposed legal terms, conditions, and pricing for the software and services, not the vendor's corporate history.

References:

1. American Health Information Management Association (AHIMA). (2020). Health Information Management Technology: An Applied Approach (6th ed.). In Chapter 20, "Information Systems and Technology," the text describes the components of an RFP, specifying that the "Vendor Profile" section is where information such as the number of years in business and number of installations is requested and reviewed (pp. 558-559).
2. Sayles, N. B., & Trawick, M. A. (Eds.). (2021). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. Chapter 26, "Information Systems Life Cycle," details the system acquisition process and notes that an RFP requests specific "vendor

information," including the vendor's background, financial viability, and installation base (Section 26.4, "System Acquisition").

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Question: 17

Your facility has the technology in place for physicians to log on to your website and enter a password. Once they have successfully logged into the system, they are able to view information that is not available to the general public. Which of the following are the physicians utilizing?

- A. intranet
- B. extranet
- C. Internet
- D. clinical information system

Answer:

B

Explanation:

An extranet is a private, controlled network that extends an organization's internal network (intranet) to authorized external users, such as business partners, vendors, or, in this case, physicians. The scenario describes physicians who are not internal employees logging into a secure, password-protected section of the facility's website from outside the organization's primary network. This use of internet technologies to grant controlled access to specific external stakeholders is the defining characteristic of an extranet. It allows for the secure sharing of information that is not intended for the general public.

Why Incorrect Options are Wrong:

- A. intranet: An intranet is a private network accessible only to an organization's internal staff. The physicians in the scenario are external users accessing the system from outside.
- C. Internet: The Internet is the global public network used to connect to the facility's website, but it is not the secure, private system itself that the physicians are accessing.
- D. clinical information system: This is a broad category of systems that manage clinical data (e.g., EHR). While the physicians are viewing data from a CIS, the network architecture they are utilizing is an extranet.

References:

1. Wager, K. A., Lee, F. W., & Glaser, J. P. (2017). Health Care Information Systems: A Practical Approach for Health Care Management (4th ed.). Jossey-Bass. In Chapter 2, "Health Care Information Systems and the Health Care Organization," an extranet is defined as "a network that connects a given organization to its customers and business partners" and is noted as being "often used so that physicians can access their patients' records from their offices" (p. 41).
2. American Health Information Management Association (AHIMA). (2020). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. Chapter 5, "Health

Information Systems," describes an extranet as a network that uses web technology to link a business with its partners, providing a secure portal for accessing specific data and applications.

3. Sayles, N. B., & Kavanaugh-Burke, L. (2021). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. Chapter 3, "Computer Hardware, Software, and the Cloud," differentiates network types, explaining that an extranet provides secure access to an organization's data for authorized external users over the Internet.

Question: 18

One of the ways that an EHR is distinguished from a clinical data repository is that the HER

- A. has clinical decision support capabilities.
- B. has data from multiple information systems.
- C. can have digital images.
- D. aggregates data.

Answer:

A

Explanation:

An Electronic Health Record (EHR) is distinguished from a Clinical Data Repository (CDR) by its active, real-time, point-of-care functionalities. A core component of this active functionality is Clinical Decision Support (CDS). CDS systems provide clinicians with knowledge and patient-specific information, intelligently filtered and presented at appropriate times, to enhance clinical decision-making through alerts, reminders, and evidence-based guidelines. While a CDR serves as a centralized database that consolidates patient data from various sources, it is primarily a passive storage and retrieval system and typically lacks the sophisticated, interactive CDS tools that are integral to a certified EHR. CertEmpire

Why Incorrect Options are Wrong:

- B. has data from multiple information systems. A primary function of a CDR is to consolidate data from disparate clinical systems; this is a shared, not a distinguishing, characteristic.
- C. can have digital images. Both a CDR and an EHR are capable of storing and integrating digital images, such as those from a Picture Archiving and Communication System (PACS).
- D. aggregates data. Data aggregation is the fundamental purpose of a CDR and is also a function performed by an EHR, often using a CDR as its underlying database.

References:

1. Sayles, N. B., & Kavanaugh-Burke, L. (2021). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 5, "The Electronic Health Record," the text defines an EHR's core functionalities, explicitly including clinical decision support (p. 119). It describes the CDR as a component for data consolidation, distinguishing the EHR's active, point-of-care tools.
2. Giannulli, T. (2021). Chapter 13: Electronic Health Records. In K. L. Johns (Ed.), Health Information Management: Concepts, Principles, and Practice (6th ed., p. 437). AHIMA Press. The text states, "A key feature of an EHR is that it contains a clinical decision support system (CDSS)... In contrast, a clinical data repository (CDR) is a centralized database that consolidates

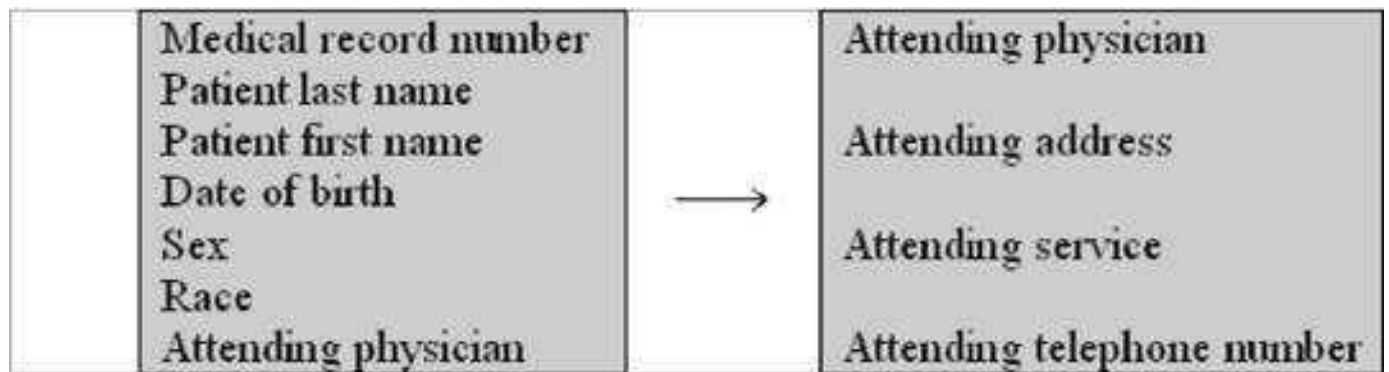
data from a variety of clinical sources."

3. Office of the National Coordinator for Health Information Technology (ONC). (2022). What is an electronic health record (EHR)? HealthIT.gov. The official U.S. government definition and certification criteria for an EHR mandate the inclusion of clinical decision support capabilities as a core function to improve patient care. A CDR is not required to have this function.

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Question: 19

What type of database model does this simple diagram depict?



- A. hierarchical
- B. network
- C. relational
- D. object oriented

Answer:

C

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Explanation:

The diagram illustrates a relational database model. This model organizes data into two-dimensional tables, also known as relations, which consist of columns (attributes) and rows (tuples). In the diagram, "Patient" and "Physician" are two separate tables. The relationship between them is explicitly defined by a common field: PhysicianID. This field serves as the primary key (PK) in the "Physician" table and a foreign key (FK) in the "Patient" table, linking a patient record to a specific physician record. This structure of tables linked by keys is the fundamental principle of the relational database model.

Why Incorrect Options are Wrong:

- A. hierarchical: This model organizes data in a rigid tree-like structure where each child record has only one parent, which is not what the linked tables depict.
- B. network: This model is more flexible than the hierarchical model, allowing a child record to have multiple parents (a graph structure), which is not shown here.
- D. object-oriented: This model stores data as objects that encapsulate both data and behavior (methods), a concept not represented in this simple table-and-key diagram.

References:

1. Johns, M. L. (2015). Health information management technology: An applied approach (4th ed.). AHIMA Press. In Chapter 12, "Data Storage and Retrieval," the relational database is defined as one where "data are stored in predefined tables that contain rows and columns... One table is linked to another when they have a field in common" (p. 318).
2. Sayles, N. B., & Trawick, M. B. (2021). Health information management and technology (6th ed.). AHIMA Press. Chapter 10, "Information and Data Management," describes the relational model as the most common type, using tables with primary and foreign keys to create relationships between entities, which is precisely what the provided diagram illustrates.
3. Stanford University. (n.d.). CS145: Introduction to Databases - The Relational Model. Course materials. The relational model is defined by its core components: relations (tables), attributes (columns), and tuples (rows), with relationships established through keys. The diagram is a classic entity-relationship diagram representing a relational schema.

Question: 20

The network topology that our system uses pauses to prevent data from colliding with other network traffic. This is

- A. FDDI.
- B. token ring.
- C. Ethernet.
- D. ATM.

Answer:

C

Explanation:

The scenario describes a network pausing to manage data collisions, which is the defining characteristic of the Carrier Sense Multiple Access with Collision Detection (CSMA/CD) protocol used by Ethernet. In a classic Ethernet network, devices listen to the network medium before transmitting. If two devices transmit simultaneously, a collision occurs. Both devices detect the collision, stop transmitting, and wait for a random, brief period (a "pause" or backoff) before attempting to send the data again. This mechanism manages access to the shared network medium and resolves data collisions after they happen.

Why Incorrect Options are Wrong:

- A. FDDI (Fiber Distributed Data Interface) uses a token-passing method on a dual-ring fiber optic network, which is a collision-avoidance technique, not a collision-detection one.
- B. Token Ring is a network topology that prevents collisions by design. A special frame, the "token," is passed around the ring, and only the device holding the token is permitted to transmit.
- D. ATM (Asynchronous Transfer Mode) is a cell-switching technology that uses virtual circuits. It is not a shared-medium protocol and does not experience collisions in the same way as Ethernet.

References:

1. Sayles, N. B., & Trawick, M. A. (Eds.). (2021). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 4, "Health Information Systems," the section on Network Topologies and Protocols describes Ethernet and its reliance on CSMA/CD to manage collisions on a shared bus, contrasting it with the collision-free Token Ring method (pp. 90-91).
2. Kurose, J. F., & Ross, K. W. (2017). Computer Networking: A Top-Down Approach (7th ed.). Pearson. Chapter 6, Section 6.3.2, "CSMA/CD: Carrier Sense Multiple Access with Collision Detection," details the operational steps of the Ethernet protocol, including the exponential backoff algorithm where a node waits a random time after a collision before retransmitting.

3. Tanenbaum, A. S., & Wetherall, D. J. (2011). Computer Networks (5th ed.). Prentice Hall. Chapter 4, "The Medium Access Control Sublayer," explains that in classic Ethernet, "If a collision is detected, the transmitting station... waits a random amount of time and tries again" (p. 287). It contrasts this with collision-free protocols like token ring.

Question: 21

What HIM health record function would best benefit from the use of bar coding?

- A. correspondence/ROI control
- B. record completion
- C. record location/tracking
- D. transcription

Answer:

C

Explanation:

Bar coding technology is most effectively used for record location and tracking in a Health Information Management (HIM) department. Each physical health record is assigned a unique bar code, which is scanned whenever the record is moved, checked out, or returned. This creates an automated, real-time audit trail of the record's location, significantly reducing the time spent searching for misplaced charts and improving the efficiency of record retrieval. This application directly addresses the logistical challenge of managing the physical movement of hundreds or thousands of patient records within a healthcare facility, making it the function that benefits most from this technology.

Why Incorrect Options are Wrong:

- A. correspondence/ROI control: While bar codes can track incoming/outgoing mail, the primary benefit is in tracking the patient record itself, which is a more critical and frequently moved asset.
- B. record completion: Bar codes can identify a deficient record, but they do not assist in the actual clinical or administrative tasks required for completion, such as physician signatures or dictation.
- D. transcription: Bar codes may be used to link a dictation file to a patient, but this is an ancillary function; it does not enhance the core process of converting voice to text.

References:

1. Abdelhak, M., Hanken, M. A., & Watz, F. (Eds.). (2021). Health Information: Management of a Strategic Resource (6th ed.). Elsevier. In Chapter 13, "Health Information Systems and Technology," the text describes chart locator systems, stating, "Bar-code scanners are used to record the location of the health record... This makes locating the health record much more efficient" (p. 301).
2. Sayles, N. B., & Trawick, M. A. (2021). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. Chapter 4, "Health Record Content and Documentation," discusses the management of paper records and notes that bar-coding is a fundamental technology used to "track the location of paper-based health records" (p. 103).

3. Oachs, P. K., & Watters, A. (2020). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. Chapter 10, "Information Systems in Healthcare," explains that bar-coding technology is a key component of chart tracking systems used to manage paper and hybrid records, automating the check-in and check-out process to maintain an accurate location index.

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Question: 22

In order for the EHR and other systems to be interoperable, the systems must meet certain

- A. rules.
- B. guidelines.
- C. standards.
- D. alerts.

Answer:

C

Explanation:

Interoperability is the ability of different health information systems and devices to access, exchange, integrate, and use electronic health information. For this to occur, systems must adhere to a common set of technical, semantic, and functional standards. These standards provide the necessary rules for data structure (e.g., HL7, FHIR), terminology (e.g., SNOMED CT, LOINC), and transport, ensuring that data sent from one system can be correctly received and interpreted by another. Adherence to these standards is the fundamental requirement for achieving seamless and meaningful data exchange between disparate EHR systems.

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Why Incorrect Options are Wrong:

- A. rules: This term is too general. While standards are a form of rule, "rules" can also refer to internal policies or regulations that do not ensure technical interoperability between systems.
- B. guidelines: Guidelines are recommendations or best practices, not mandatory requirements. Effective interoperability requires strict, unambiguous specifications, which are defined by standards, not optional guidelines.
- D. alerts: Alerts are functional outputs of a system, such as a clinical decision support warning. They are a feature within an EHR, not a foundational requirement for connecting different systems.

References:

1. Abdelhak, M., & Hanken, M. A. (Eds.). (2021). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. In Chapter 13, "Health Information Exchange and Interoperability," the text states, "For HIE to be possible, standards are necessary... Interoperability is the ability of different information systems and software applications to communicate and exchange data" (p. 408).
2. The Office of the National Coordinator for Health Information Technology (ONC). (2024). Interoperability Standards Advisory (ISA). U.S. Department of Health & Human Services. The entire purpose of the ISA is to provide a "single, public list of the standards and implementation

specifications that can be used to meet specific clinical health IT interoperability needs." (See Introduction section at <https://www.healthit.gov/isa/>).

3. Benson, T., & Grieve, G. (2016). Principles of Health Interoperability: SNOMED CT, HL7 and FHIR (3rd ed.). Springer. Chapter 1, "What is Interoperability?", explicitly defines the concept as being dependent on standards: "Interoperability is the ability to exchange and use information, which is only possible if there are common standards" (p. 3).

<https://doi.org/10.1007/978-3-319-30370-3>

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Question: 23

You are developing a list of functions needed by users of a release of information system. You also evaluating the current system to see what opportunities there are to improve the system. Which stage of the system developmental life cycle stages are you in?

- A. analysis
- B. implementation
- C. design
- D. obsolescence

Answer:

A

Explanation:

The activities described-developing a list of functions needed by users (requirements gathering) and evaluating the current system for improvement opportunities-are the defining tasks of the analysis phase of the System Development Life Cycle (SDLC). This stage focuses on understanding the business problem, analyzing the existing system's strengths and weaknesses, and defining the detailed functional requirements for the new or updated system. The goal is to determine what the system needs to do before moving on to how it will be done in the design phase.

Why Incorrect Options are Wrong:

- B. implementation: This phase involves the actual coding, building, and installation of the system based on the design specifications, which occurs after the analysis and design phases.
- C. design: This phase translates the requirements gathered during analysis into a technical blueprint. It focuses on how the system will be built, not what it needs to do.
- D. obsolescence: This is the final phase of the SDLC where a system is retired or decommissioned because it is no longer effective or supported.

References:

1. Sayles, N. B., & Tesch, D. (2021). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 15, "Systems Analysis and Design," the analysis phase is detailed as the stage where the project team studies the current system, identifies user needs, and develops a list of functional requirements for the new system (pp. 438-440).
2. Valacich, J. S., & George, J. F. (2020). Modern Systems Analysis and Design (9th ed.). Pearson. Chapter 1, "The Systems Development Environment," describes the analysis phase as the step where the current system is thoroughly studied and the requirements for the replacement system are determined (p. 11, Figure 1-4).

3. Abdelhak, M., & Hanken, M. A. (2016). Health Information: Management of a Strategic Resource (5th ed.). Elsevier. Chapter 20, "Systems Development Life Cycle," explains that the analysis phase involves investigating the current system, identifying problems, and specifying the information needs of users (i.e., functional requirements) for the proposed system.

Question: 24

Your Community Hospital utilizes a WAN that transports data across the Internet by using a private tunnel. This is a

- A. WLAN
- B. LAN
- C. VPN
- D. FDDI

Answer:

C

Explanation:

A Virtual Private Network (VPN) extends a private network across a public network, such as the Internet. It enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. This is achieved by establishing a virtual point-to-point connection through the use of dedicated connections, encryption, or a combination of both, creating a secure "private tunnel." The scenario describes exactly this functionality for a Wide Area Network (WAN).

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Why Incorrect Options are Wrong:

- A. A WLAN (Wireless Local Area Network) is a network that links two or more devices using wireless communication within a limited area, not a tunneling method over the Internet.
- B. A LAN (Local Area Network) is a computer network that interconnects computers within a limited area such as a residence, school, or office building.
- D. FDDI (Fiber Distributed Data Interface) is a standard for data transmission in a local area network using fiber optic cables, not a technology for creating private tunnels over a WAN.

References:

1. Sayles, N. B., & Kavanaugh-Burke, L. (2021). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 4, "Health Information Systems," the text describes network technologies, stating, "A virtual private network (VPN) uses a secure tunnel through a public network, usually the Internet, to connect remote sites or users" (p. 112).
2. Kurose, J. F., & Ross, K. W. (2017). Computer Networking: A Top-Down Approach (7th ed.). Pearson. Chapter 8, "Security in Computer Networks," explains that a VPN "is created by using IPsec to provide a logical link between the two hosts that is encrypted and authenticated at the IP level... This provides a 'virtual' private network over the 'physical' public Internet" (Section 8.7.2).
3. Massachusetts Institute of Technology. (2016). 6.857 Computer and Network Security, Lecture 16: Network Security II. MIT OpenCourseWare. The lecture notes define a VPN as a mechanism

to "create a private network on top of a public network (Internet)" using tunneling and encryption protocols like IPsec. (<https://ocw.mit.edu/courses/6-857-computer-and-network-security-fall-2016/resources/mit6857f16lec16/>)

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Question: 25

Your Community Hospital utilizes a WAN that transports data across the Internet by using a private tunnel. This is a

- A. WLAN
- B. LAN
- C. VPN
- D. FDDI

Answer:

C

Explanation:

The scenario describes creating a secure, private tunnel to transport data across a public network (the Internet), which is the definition of a Virtual Private Network (VPN). A VPN extends a private network across a public network, enabling users to send and receive data as if their devices were directly connected to the private network. This is a common and essential security measure for healthcare organizations to protect electronic protected health information (ePHI) when transmitted between different physical locations.

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Why Incorrect Options are Wrong:

- A. WLAN (Wireless Local Area Network) is a network that uses radio waves to connect devices within a limited geographical area, not a tunneling technology over the Internet.
- B. LAN (Local Area Network) is a wired or wireless network confined to a small area like a single building; it does not describe transport over the Internet.
- D. FDDI (Fiber Distributed Data Interface) is an older standard for data transmission in a local area network using fiber optic cables, not a security protocol for a WAN.

References:

1. Sayles, N. B., & Trawick, L. L. (2021). Health Information Management Technology: An Applied Approach (7th ed.). AHIMA Press. In Chapter 6, "Information and Communication Technology," the text explains that a VPN "uses the internet as a communication channel, but a 'tunnel' is created so that the data transmitted is encrypted and secure."
2. Johns, M. L. (2015). Health Information Management Technology: An Applied Approach (5th ed.). AHIMA Press. Chapter 5, "Health Information Systems," defines a VPN as a network that "uses a public telecommunication infrastructure, such as the Internet, to provide remote offices or individual users with secure access to their organization's network."
3. Kurose, J. F., & Ross, K. W. (2017). Computer Networking: A Top-Down Approach (7th ed.). Pearson. Chapter 8, Section 8.7, "Securing TCP Connections: SSL," describes how VPNs use

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IPsec to create an encrypted tunnel between two routers over the public Internet, effectively joining two private LANs into a single private WAN. This is a standard university textbook for computer science and IT curricula.

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Question: 26

Dr. Smith wants to see the latest test results first. Dr. Brown wants to see the nurse's notes first. The different user views can be available by use of by a

- A. subschema.
- B. schema.
- C. data dictionary.
- D. GUI

Answer:

A

Explanation:

A subschema, also known as an external schema or a user view, defines a specific user's or application's perspective of the database. It allows the data to be presented in a customized format and can restrict access to only a portion of the total database. In this scenario, the system uses two different subschemas to present the same patient record in two different ways, one tailored to Dr. Smith's preference (test results first) and another to Dr. Brown's (nurse's notes first), based on the same underlying database structure (the schema).

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Why Incorrect Options are Wrong:

A schema is the logical structure of the entire database, not a customized view for an individual user. It represents the global view of all data.

A data dictionary is a repository of metadata (data about data); it defines data elements but does not create or manage user-specific views.

A GUI (Graphical User Interface) is the visual interface used to interact with the system, but the subschema is the underlying database construct that defines and enables the different data views presented through the GUI.

References:

1. Elmasri, R., & Navathe, S. B. (2017). Fundamentals of Database Systems (7th ed.). Pearson. In Chapter 2, Section 2.2, "Data Models, Schemas, and Instances," the three-schema architecture is described. The external level is defined as having "a number of external schemas or user views... Each external schema describes the part of the database that a particular user group is interested in and hides the rest of the database from that user group." (p. 36). This directly corresponds to the concept of a subschema providing different views for different doctors.
2. Sayles, N. B., & Gordon, L. T. (2016). Health Information Management Technology: An Applied Approach (5th ed.). AHIMA Press. Chapter 11, "Data Storage and Retrieval," discusses database management systems. It explains that a key function of a DBMS is to provide different views of

the data to different users, stating, "The view of the data is the user's perspective of the data... This allows the user to see the data in the format that he or she needs." (p. 289). This function is implemented through external schemas or subschemas.

3. Stanford University, CS 145 Introduction to Databases course materials. In the lecture notes on "Data Models," the three-level schema architecture (External, Conceptual, Internal) is a foundational topic. The External Schema is explicitly defined as the "view" for a particular group of users, which can be a subset of the conceptual schema or contain virtual data derived from it, matching the definition of a subschema.

Question: 27

You need a system that will provide information on your census, update your master patient index, and distribute demographic data. What type of system would you purchase?

- A. ADT
- B. executive information system
- C. clinical information system
- D. financial information system

Answer:

A

Explanation:

An Admission-Discharge-Transfer (ADT) system, often part of a larger Registration-ADT (R-ADT) system, is the foundational administrative information system in a healthcare facility. Its primary functions are to manage patient registration, capture demographic and insurance data, and track the patient's movement throughout the facility (admission, transfer between units, and discharge). This tracking capability directly generates the patient census. As the system of record for patient identity, it is responsible for creating and updating the Master Patient Index (MPI). The demographic data it collects is then distributed to all other clinical and financial systems that require it, making it the central source for this information.

Why Incorrect Options are Wrong:

- B. executive information system: This is a decision support tool for senior management, providing high-level, aggregated data for strategic analysis, not for operational patient tracking.
- C. clinical information system: This system (e.g., an EHR) focuses on patient care and clinical data documentation; it consumes demographic data from the ADT system but does not originate it.
- D. financial information system: This system manages billing, accounting, and claims processing, relying on the patient and insurance data provided by the ADT system.

References:

1. AHIMA. Health Information Management: Concepts, Principles, and Practice. 6th ed. Chicago, IL: AHIMA Press; 2020: 288-289. Chapter 10, "Healthcare Information Systems," describes the Registration-Admission, Discharge, Transfer (R-ADT) system as the source for capturing demographic information, generating the MPI, and tracking patient status, which is used for the census.
2. Sayles, N. B., & Gordon, L. A. Health Information Management Technology: An Applied Approach. 6th ed. Chicago, IL: AHIMA Press; 2020: 121. Chapter 5, "Healthcare Information

Systems," states, "The R-ADT system is used to input patient information... This information is used to create the patient record, the MPI, and the patient bill... The ADT portion of the system tracks the patient's movement from admission through discharge or transfer."

3. Oachs, P. K., & Watters, A. L. Health Information Management: Concepts, Principles, and Practice. 5th ed. Chicago, IL: AHIMA Press; 2016: 258. Chapter 9, "Healthcare Information Systems," explains that the R-ADT system is a cornerstone application that provides other systems with patient demographics and is the source for the MPI and census list.

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Question: 28

As HIM Department Director, you are on the implementation team for the new MPI. You have been assigned the responsibility of looking at every data element stored in the system and establishing criteria for the use of each. An example of what you are doing is below:

Name	name
Description	This field is for the patient's last name
Number of characters	30
Alphanumeric	Alpha
Acceptable characters	a-z
Responsible person	HIM Director
Used in reports	admissions list, discharge list, transfer list, health record number list, UB-92, CMS-1500

You are responsible for the

- A. data flow diagram.
- B. decision tree.
- C. data dictionary.

Answer:

C

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Explanation:

The image displays a table that defines specific data elements by listing their names, definitions, data types, lengths, and other attributes. This is the exact function and format of a data dictionary. A data dictionary is a centralized repository of information about data, or metadata. It is a critical tool for data governance and database management, used to standardize definitions and ensure consistency in data use across an information system, such as a Master Patient Index (MPI). The task described-establishing criteria for the use of each data element-is the core purpose of developing a data dictionary.

Why Incorrect Options are Wrong:

- A. data flow diagram: This is a graphical representation that shows how data moves through a system's processes, not a descriptive list defining data elements.
- B. decision tree: This is a flowchart-like model used for decision analysis and classification, not for documenting the metadata of data elements in a database.

References:

1. Sayles, N. B., & Gordon, L. T. (Eds.). (2020). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. In Chapter 10, "Data and Information Governance," the text defines a data dictionary as a tool that "manages the data definitions and metadata for all data elements" and is essential for establishing data standards (pp. 298-299).
2. Sayles, N. B., & T. M. J. (Eds.). (2020). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. Chapter 5, "Health Information Systems," describes a data dictionary as a "descriptive list of the data elements to be collected in an information system or database whose purpose is to ensure consistency of terminology" (p. 121).
3. Johns Hopkins University. (n.d.). Data Dictionaries. Data Management Services, Sheridan Libraries. Retrieved from <https://dms.data.jhu.edu/data-management-tools/data-dictionaries/>. This university resource explains that a data dictionary contains definitions of variables and attributes, including variable names, descriptions, and data types, which directly corresponds to the example provided in the question.

Question: 29

WORM technology is useful in storing medical information on optical disks or platters because

- A. it does not require that information be digitally scanned into the computer.
- B. records may be modified as needed to update the patient's medical record.
- C. the write-once, read-many feature permanently stores information without the ability to alter or modify the original documentation.
- D. only authorized personnel are allowed to make changes in the medical record.

Answer:

C

Explanation:

WORM (Write-Once, Read-Many) technology is an optical or magnetic data storage method that allows information to be written to a medium just once. After being written, the data cannot be erased or modified. This feature of immutability is crucial for maintaining the integrity of the legal health record. By ensuring that the original documentation is permanently stored without the possibility of alteration, WORM technology helps healthcare organizations meet legal and regulatory requirements for record authenticity, non-repudiation, and long-term retention. This makes it an ideal solution for archiving patient information where data integrity is paramount.

Why Incorrect Options are Wrong:

- A. WORM is a storage technology; information from paper sources must still be digitized, typically by scanning, before it can be stored.
- B. The primary feature of WORM technology is that it prevents modification, which is the opposite of what this option states.
- D. This describes access control, a security function of the software or operating system, not an inherent feature of the WORM storage medium.

References:

1. Sayles, N. B., & Trawick, M. A. (2020). Health information management technology: An applied approach (6th ed.). AHIMA Press. In Chapter 6, "The Electronic Health Record," the section on Electronic Document Management Systems (EDMS) discusses storage options, noting that WORM technology is used to ensure that documents cannot be altered after they are stored, thus preserving the integrity of the original document (pp. 168-169).
2. Sayles, N. B. (2020). Fundamentals of law for health informatics and information management (4th ed.). AHIMA Press. Chapter 5, "The Legal Health Record," discusses the importance of maintaining the integrity of health records for legal admissibility. WORM technology supports this by creating unalterable records, which is a key principle for establishing the trustworthiness of

electronic evidence (p. 134).

3. AHIMA e-HIM Work Group. (2011). Electronic Document Management as a Component of the EHR. Journal of AHIMA, 82(3), 58-63. This practice brief explicitly states, "To ensure non-repudiation and that the document cannot be altered, the document should be stored on unalterable media, such as write-once, read-many (WORM) optical disk or stored in a trusted digital archive." (p. 61).

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Question: 30

A common language used in data definition language and data manipulation language is:

- A. unified modeling language
- B. metadata
- C. HTML
- D. SQL

Answer:

D

Explanation:

Structured Query Language (SQL) is the standard language for relational database management systems. It is a comprehensive language that includes commands for both defining and manipulating data. SQL is composed of several sublanguages, including Data Definition Language (DDL) and Data Manipulation Language (DML). DDL commands, such as CREATE TABLE and ALTER TABLE, are used to define and manage the database structure. DML commands, such as SELECT, INSERT, and UPDATE, are used to retrieve and modify the data within that structure. Therefore, SQL serves as the common language for both functions.

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Why Incorrect Options are Wrong:

- A. Unified Modeling Language (UML) is a standardized visual language for modeling software systems; it is not used for database definition or manipulation.
- B. Metadata is descriptive data about other data. It is information, not a programming or query language used to interact with a database.
- C. HTML (HyperText Markup Language) is a markup language used to structure content for display on the World Wide Web, not for managing databases.

References:

1. AHIMA. (2020). Health Information Management Technology: An Applied Approach, Sixth Edition. AHIMA Press. In Chapter 13, "Data Management and Analytics," the section on "Database Languages" explains that SQL is the standard language for relational databases and includes both Data Definition Language (DDL) and Data Manipulation Language (DML) components.
2. Elmasri, R., & Navathe, S. B. (2016). Fundamentals of Database Systems, 7th Edition. Pearson. Chapter 4, "The Basic SQL Query," and Chapter 8, "SQL: Data Definition, Constraints, and Schema Change," explicitly detail the DML and DDL commands that are part of the overall SQL standard.
3. Stanford University. (n.d.). CS145: Introduction to Databases, Lecture Notes. Retrieved from

<https://certempire.com>

Stanford's OpenCourseWare. The course materials on SQL clearly define it as the language for relational databases and categorize its commands into DDL (e.g., CREATE), DML (e.g., SELECT), and DCL (Data Control Language).

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Question: 31

Your new optical disk system has the ability to automatically route charts that need cod' analyzing, and other processing to the appropriate person. What is this technology called?

- A. workflow
- B. data flow
- C. routing
- D. integration

Answer:

A

Explanation:

Workflow technology is the automation of a business process where documents, information, or tasks are passed from one participant to another for action according to a set of procedural rules. In the context of a Health Information Management (HIM) department, an optical disk or electronic document management system uses workflow to automatically route digitized health records (charts) to specific queues for individuals or groups, such as coders or analysts. This ensures that tasks are performed in the correct sequence by the appropriate personnel, enhancing efficiency and accountability.

Why Incorrect Options are Wrong:

- B. data flow: This term describes the path data takes through a system, but it does not encompass the automation of business processes or task management.
- C. routing: Routing is a single action or component within a workflow system; workflow is the comprehensive technology that manages the entire process, including the rules for routing.
- D. integration: Integration refers to the process of connecting disparate systems to work together, not the specific function of automating task sequences within a system.

References:

1. Sayles, N. B., & Gordon, L. T. (2020). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 10, "Electronic Health Records," the section on Electronic Document Management Systems (EDMS) describes workflow technology as a key component that "allows documents to be electronically routed to a variety of users at the same time" for processing.
2. Abdelhak, M., Grostick, S., & Hanken, M. A. (Eds.). (2016). Health Information: Management of a Strategic Resource (5th ed.). Elsevier. Chapter 11, "Document and Content Management," defines workflow management systems as those that "automate business processes by managing the flow of work" and "route work to the appropriate people in the proper sequence."

3. University of Illinois Chicago. (n.d.). HIM 451: Health Information Systems Analysis and Design Courseware. The course curriculum discusses workflow as the sequence of tasks and the movement of information that constitutes a work process, and how information systems are designed to automate and manage this flow in healthcare settings.

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Question: 32

Differentiate between the physical and logical data models.

- A. The physical data model shows how the logical model will be created and the logical data model shows the technology plan to be used.
- B. The logical data model shows what the system should do and the physical data model shows how the logical data model will be created.
- C. The logical data model uses DFDs and the physical data model uses entity relations models.
- D. The physical data model uses DFDs and the logical uses entity relationship model.

Answer:

B

Explanation:

The logical data model serves as an abstract representation of data for a business domain. It defines the essential data elements, their structures, and the relationships between them, focusing on the business requirements-or "what" the system should do. It is independent of any specific database technology. The physical data model translates the logical model into a concrete implementation for a specific database management system (DBMS). It details "how" the data will be physically stored, including tables, columns, data types, keys, and indexes, thereby showing how the logical model will be created and implemented.

Why Incorrect Options are Wrong:

- A: The logical data model is technology-agnostic; it does not define the technology plan.
- C: Data Flow Diagrams (DFDs) model processes, not data structures. Entity-Relationship Diagrams (ERDs) are used for logical modeling.
- D: This option incorrectly reverses the roles and misapplies DFDs, which are used for process modeling, not data modeling.

References:

1. Sayles, N. B., & Trawick, M. F. (2021). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. In Chapter 13, "Data Storage and Warehousing," the text distinguishes the models: "The logical data model... defines the data elements and the relationships among them... The physical data model... goes a step further to identify how the data are stored in the computer."
2. Johns, M. L. (Ed.). (2015). Health Information Management: Concepts, Principles, and Practice (5th ed.). AHIMA Press. Chapter 23, "Information Systems," describes the systems development life cycle, where the logical design phase focuses on business needs ("what the system should

do"), and the physical design phase specifies the technical implementation ("how the system will do it").

3. University of Illinois Chicago. (n.d.). BHIS 505 - Health Information Systems Analysis and Design, Course Materials. The curriculum outlines that the logical model represents business data requirements, while the physical model details the database-specific implementation, including storage structures and access methods. This aligns with the logical "what" versus the physical "how."

Question: 33

The administrator has asked us to develop a patient satisfaction database internally. This data will be used to collect data that can be used to improve our services. He does not want this to long, drawn- out process. Which of the following could speed up this process?

- A. RFI
- B. RFP
- C. prototyping
- D. functional requirements

Answer:

C

Explanation:

Prototyping is a system development methodology that focuses on creating a working model of the proposed system quickly. This allows users to interact with the model, provide immediate feedback, and request modifications. This iterative process of building, testing, and refining is significantly faster than traditional, linear approaches (like the waterfall model) that require extensive upfront documentation of functional requirements. By enabling rapid development and user validation early in the process, prototyping directly addresses the administrator's request to avoid a "long, drawn-out process" for the internal database development.

Why Incorrect Options are Wrong:

- A. RFI (Request for Information) is a procurement process to gather general information from vendors and is not a method for internal system development.
- B. RFP (Request for Proposal) is a formal procurement document used to solicit proposals from external vendors, which is irrelevant for an internal project.
- D. Functional requirements are detailed specifications of what a system must do; their creation is a necessary but often lengthy phase, not a method to accelerate the overall process.

References:

1. LaTour, K. M., & Eichenwald-Maki, S. (2020). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. In Chapter 23, "Information Systems and Technology," the text discusses the Systems Development Life Cycle (SDLC) and describes prototyping as an iterative approach that accelerates development by providing a tangible model for users to evaluate early in the process.
2. Sayles, N. B., & Trawick, M. A. (2020). Health Information Management Technology: An Applied Approach (6th ed.). AHIMA Press. Chapter 15, "Systems Development Life Cycle," explains that prototyping is a model-building technique used to speed up the design phase and

ensure the final product meets user needs through early and continuous feedback.

3. Wager, K. A., Lee, F. W., & Glaser, J. P. (2017). Health Care Information Systems: A Practical Approach for Health Care Management (4th ed.). Jossey-Bass. Chapter 4, "System Selection and Implementation," contrasts traditional SDLC with alternative methods, noting that prototyping is a form of Rapid Application Development (RAD) designed to shorten the development timeframe.

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Question: 34

Cynthia wants to retrieve a list of patients from the new electronic document management system. She wants a list of patients admitted to the hospital by Dr. Smith. Which of the following would explain why she cannot generate this list?

- A. improper scanning
- B. the necessary indexing to retrieve this list was not done
- C. the data is stored on optical disk so it not readily available
- D. the COLD technology has not downloaded the lab reports

Answer:

B

Explanation:

An Electronic Document Management System (EDMS) relies on indexing to make scanned documents searchable and retrievable. Indexing involves assigning metadata, such as admitting physician, patient name, or date of service, to each document. If the "admitting physician" field was not created and populated during the indexing process when documents were scanned into the system, the EDMS has no way to execute a query to find all patients associated with a specific physician. The inability to generate the list is a direct result of this missing index, which is fundamental for retrieval.

Why Incorrect Options are Wrong:

- A. improper scanning: Improper scanning affects the quality and legibility of the document image itself but does not prevent the system from searching based on correctly entered index data.
- C. the data is stored on optical disk so it not readily available: Storing data on optical disks might increase retrieval time compared to magnetic storage, but it would not make it impossible to generate the list from the system's index.
- D. the COLD technology has not downloaded the lab reports: COLD-fed reports (Computer Output to Laser Disk) are a specific data type. The absence of lab reports would not affect a query based on the admitting physician, which is typically indexed from admission forms.

References:

1. Sayles, N. B., & Gordon, L. A. (2021). Health information management technology: An applied approach (6th ed.). AHIMA Press. In Chapter 6, "Electronic Health Records," the section on "Document Management Systems" states, "The indexing system is the key to retrieval. The document is scanned and then indexed, which is the entering of the metadata... If the indexing is not performed or is performed incorrectly, the document may be difficult or impossible to find." (p. 145).

2. Oachs, P. K., & Watters, A. (2020). Health information management: Concepts, principles, and practice (6th ed.). AHIMA Press. Chapter 14, "Health Information Systems," explains that in a document management system, "Indexing is an organized method for identifying and retrieving a document... Without indexing, it would be impossible to retrieve the specific document needed." (p. 431).
3. Johns, M. L. (2015). Health information management technology: An applied approach (4th ed.). AHIMA Press. Chapter 5, "Health Information Systems," emphasizes, "The indexing system is the most important part of the EDMS... Without proper indexing, the user may not be able to retrieve the document image." (p. 119).

Question: 35

A Web site that uses links to provide easy access to information of interest to the users is called a(n)

- A. intranet.
- B. internet.
- C. extranet
- D. portal.

Answer:

D

Explanation:

A portal is a specific type of website designed to be a single point of access to information, applications, and services. It aggregates content from various sources and presents it in an organized, user-centric manner. By using links, personalized dashboards, and search functions, a portal provides users with a convenient and tailored gateway to information relevant to their interests or roles, such as a patient portal providing access to lab results, appointments, and health records. This function directly aligns with the description of a website that uses links for easy access to information of interest.

Why Incorrect Options are Wrong:

- A. intranet: An intranet is a private network exclusive to an organization's internal staff, not a general-purpose access point for all users.
- B. internet: The internet is the vast, global network infrastructure that connects computers worldwide; it is not a specific type of website.
- C. extranet: An extranet is a controlled, private network that allows external partners (e.g., suppliers, customers) to access specific parts of an organization's intranet.

References:

1. Sayles, N. B., & Gordon, L. A. (Eds.). (2021). Health Information Management: Concepts, Principles, and Practice (6th ed.). AHIMA Press. In Chapter 10, "Health Information Systems," a portal is described as a single point of personalized access for users to accomplish tasks and find information. The text distinguishes this from an intranet (internal) and an extranet (internal-external partnership).
2. Oachs, P. K., & Watters, A. (2020). Health Information Management: Concepts, Principles, and Practice (5th ed.). AHIMA Press. Chapter 11, "Information and Communication Technologies," defines a portal as a "special application to provide secure remote access to specific applications" and differentiates it from the broader network concepts of internet, intranet, and extranet (pp.

328-329).

3. University of Illinois Chicago. (n.d.). Course BHIS 460: Health Information Systems Analysis and Design. Course materials define a web portal as a gateway that provides a single point of access to a variety of information and services, often in a personalized manner for the user. This is contrasted with the network architecture definitions of intranet and extranet.

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