



<b>QUALIFICATION : BACHELOR OF SCIENCE IN HEALTH INFORMATION SYSTEMS MANAGEMENT</b>	
<b>QUALIFICATION CODE: 07BSHM</b>	<b>LEVEL: 6</b>
<b>COURSE: HEALTH DATABASE MANAGEMENT</b>	<b>COURSE CODE: HDM621S</b>
<b>DATE: JANUARY 2024</b>	<b>SESSION: 1</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 100</b>

**SECOND OPPORTUNITY: EXAMINATION QUESTION PAPER**

**EXAMINER: MR. IMMANUEL ANTONIUS**

**MODERATOR: MS. CHIVUNO-KURIA SHILUMBE**

**INSTRUCTIONS**

1. Answer all questions on the separate answer sheet.
2. Please write neatly and legibly.
3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.
4. No books, notes and other additional aids are allowed.
5. Mark all answers clearly with their respective question numbers.

**PERMISSIBLE MATERIALS**

1. None

**ATTACHMENTS**

1. None

**This paper consists of 6 pages including this front page.**

**QUESTION 1: MULTIPLE CHOICE QUESTIONS****[10 MARKS]**

**1. Choose the correct response from the multiple-choice options provided. 1 Mark per question.**

**1.1 What is Health Data Management (HDM)?**

- a) A system for managing electronic medical records only
- b) A systematic organization of health data in digital form
- c) A type of programming language for healthcare data
- d) A physical storage system for medical records

**1.2 Which of the following is not one of the benefits of Health Data Management?**

- a) Improved patient engagement
- b) Business decision making
- c) Analyzing weather patterns
- d) Creating a comprehensive view of patients

**1.3 What is the primary function of Data Definition Language (DDL) in database languages?**

- a) Inserting and updating data
- b) Controlling access to data
- c) Creating the framework of the database
- d) Managing transactions

**1.4 What is the first stage in the data mining process?**

- a) Data analysis
- b) Data collection
- c) Deployment
- d) Problem definition

**1.5 What is structured data commonly used for in health databases?**

- a. Textual analysis
- b. Machine learning algorithms
- c. Raw data storage
- d. Social media posts

**1.6 Which programming language is typically used to manage structured data?**

- a. Python
- b. Java
- c. SQL
- d. Ruby

**1.7 Unstructured data is typically managed in which type of database?**

- a) Relational (SQL)
- b) NoSQL
- c) Data warehouse
- d) Data lake

**1.8 What HTML tag is commonly used to create hyperlinks in health database websites?**

- a) <link>
- b) <a>
- c) <href>
- d) <url>

**1.9 Which HTML element is used to define the structure of a web page, including headings, paragraphs, and lists?**

- a) <div>
- b) <section>
- c) <body>
- d) <article>

**1.10 Which standard is widely recognized for healthcare data exchange in importing and exporting health records?**

- a) HTML
- b) CDA
- c) JSON
- d) CSS

**QUESTION 2: TRUE/FALSE QUESTIONS**

**[10 MARKS]**

2. Evaluate the statements and select whether the statement is true or false. Write the word 'True' or 'False' next to the corresponding number on your ANSWER SHEET.
- 2.1 Data verification is about preventing errors, while data validation is about cross-checking entered data.
- 2.2 Data quality training is not necessary for personnel involved in data management.
- 2.3. Blockchain technology is not considered a future trend in securing health record exchange.
- 2.4 Health Data Management involves organizing health data in digital form.
- 2.5 Data Mining is the process of extracting patterns from small data sets.
- 2.6 Transaction Control Language (TCL) ensures that all tasks within a transaction must succeed for it to work.
- 2.7 The deployment stage is the first step in the data mining process.
- 2.8 Structured data is best suited for text analysis.
- 2.9 Data mining is also known as knowledge discovery in data or KDD.
- 2.10 Data warehouses are used primarily for transaction processing.

**SECTION B: SHORT/LONG ANSWER QUESTIONS****[ 40 MARKS]****QUESTION 3****[15 MARKS]**

- 3.1 A healthcare organization wants to use data to predict patient outcomes and improve care. What role can Health Data Management (HDM) play in achieving this goal? [3]
- 3.2 What is the role of Data Manipulation Language (DML) in databases? [2]
- 3.3 How can data mining be used to address credit issues and fraud? [2]
- 3.4 What is the ultimate goal of data mining in corporate decision-making? [2]
- 3.5 What are some examples of Transaction Control Language (TCL) statements? [3]
- 3.6 In a hospital setting, the IT team is tasked with enhancing an existing electronic health record system by incorporating new patient data fields and modifying existing ones. Which database language and commands should they employ to accomplish these database structural changes? [3]

**QUESTION 4****[25 MARKS]**

- 4.1 You are the IT manager of a medium-sized healthcare organization that has been rapidly expanding. Your organization is currently using on premise data storage for its patient records and administrative systems. However, you are facing challenges with scalability, and there's a need to modernize your infrastructure. Therefore, present to your team the several hosting options available and explain two related benefits and drawbacks. [12]
- 4.2 Provide a definition of a Decision Support System (DSS) and explore four of its distinct features. [10]
- 4.3 Describe the purpose of the **Data Filter** and the **Duplicate list** gadget in Visual Dashboard of Epi info. [3]



## QUESTION 5

[16 MARKS]

- 5.1 In a patient's medical record, there's an X-ray image of a fractured bone that needs to be included in the online report. Explain how you would add this image to the HTML document while ensuring accessibility. [4]
- 5.2 What is the purpose of HTML in the context of medical records? [2]
- 5.3 What is the role of the <h1> to <h6> tags in HTML? [2]
- 5.4 You want to provide patients with the option to download their complete medical history as a PDF file. How would you create a clickable button for this purpose using HTML? [4]
- 5.5 How do you comment out code in HTML? [2]

## QUESTION 6

[24 MARKS]

- 6.1 What is the primary role of data validation in data entry? [2]
- 6.2 Why is data governance important in maintaining data quality? [2]
- 6.3 List two challenges in maintaining data quality during the import and export of health records? [2]
- 6.4 You are a healthcare IT manager considering the adoption of blockchain technology for securing health record exchange. Describe three potential benefits and three challenges associated with implementing blockchain in healthcare. [12]
- 6.5 You are a data analyst in a healthcare research organization, and you've noticed inconsistencies in date formats within the research database. Provide the steps on how to standardize date formats to improve data consistency? [6]

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END OF QUESTION PAPER