**MEDICAPS**
UNIVERSITY

# Faculty of Pharmacy
## End Sem Examination May 2025
### PY3CO33 Computer Applications in Pharmacy

Programme: B. Pharm. Branch/Specialisation: Pharmacy

**Duration: 3 Hrs.**                    **Maximum Marks: 50**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

|  |  |  | Marks | CO | BL |
|---|---|---|---|---|---|
| Q.1 | i. | What is the base of the hexadecimal number system? | 1 | 1 | 2 |
|  |  | (a) 8          (b) 10          (c) 16          (d) 2 |  |  |  |
|  | ii. | In binary addition, what is the result of $(1)_2 + (1)_2$? | 1 | 1 | 2 |
|  |  | (a) $(0)_2$          (b) $(1)_2$          (c) $(11)_2$          (d) $(10)_2$ |  |  |  |
|  | iii. | What is the standard markup language for creating web pages? | 1 | 2 | 1 |
|  |  | (a) XML          (b) CSS          (c) HTML          (d) JavaScript |  |  |  |
|  | iv. | Which programming language is commonly used for adding interactivity to web pages? | 1 | 2 | 1 |
|  |  | (a) HTML          (b) XML          (c) CSS          (d) JavaScript |  |  |  |
|  | v. | What technology is commonly used for automated dispensing of drugs in pharmacies? | 1 | 3 | 1 |
|  |  | (a) RFID |  |  |  |
|  |  | (b) Barcode |  |  |  |
|  |  | (c) NFC |  |  |  |
|  |  | (d) QR Code |  |  |  |
|  | vi. | What technology is commonly used for patient monitoring in healthcare facilities? | 1 | 3 | 1 |
|  |  | (a) RFID |  |  |  |
|  |  | (b) Barcode |  |  |  |
|  |  | (c) NFC |  |  |  |
|  |  | (d) IoT |  |  |  |

vii. What is the primary objective of bioinformatics? **1  4  1**
 (a) Studying biological organisms under a microscope
 (b) Analyzing and interpreting biological data using computational tools
 (c) Conducting experiments in a laboratory setting
 (d) Developing new pharmaceutical drugs

viii. Which of the following is a key component of bioinformatics databases? **1  4  1**
 (a) Patient records
 (b) Financial transactions
 (c) DNA sequences
 (d) Weather data

ix. Which system is commonly used for managing laboratory data, including experimental results and sample tracking? **1  5  1**
 (a) Chromatographic Data Analysis (CDS)
 (b) Laboratory Information Management System (LIMS)
 (c) Text Information Management System (TIMS)
 (d) Data Analysis System (DAS)

x. Which software is specifically designed for analysing chromatographic data, such as HPLC or GC results? **1  5  1**
 (a) LIMS    (b) TIMS    (c) CDS    (d) CAD

**Q.2** Attempt any two:

i. What are the key steps involved in conducting a thorough requirement analysis and feasibility study for a software project, highlighting their importance in ensuring project success? **5  1  2**

ii. Explain the design and functionality of a pharmacy drug database, outlining its significance in pharmaceutical management. **5  2  2**

iii. (a) Explain the concept of data flow diagrams in information systems analysis with their notations. **5  1  2**
 (b) Describe the purpose of XML in web development. **2  2**

**Q.3** Attempt any six: Two questions from each section is compulsory.

### Section - A

i. Explain the importance of barcode medicine identification in pharmacy automation. **5  3  2**

ii. Explain the concept of pharmacokinetics and its significance in drug design. **5  3  2**

iii. Describe the application of computers in storing and retrieving drug information in pharmacy settings. Also explain how does mobile technology contributes to medication adherence monitoring? **5  3  2**

### Section - B

iv. Discuss the importance of the National Center for Biotechnology Information (NCBI) databases in bioinformatics and the Immune Epitope Database (IEDB). **5  4  2**

v. Describe the objective of bioinformatics databases and their role in biological research. **5  4  1**

vi. Describe the importance of bioinformatics databases in facilitating vaccine discovery and development, providing examples of key databases and their contributions to vaccine research. **5  4  2**

### Section - C

vii. Discuss the role of Text Information Management Systems (TIMS) in data analysis for preclinical development. **5  5  2**

viii. Explain the significance of Chromatographic Data Analysis (CDS) in preclinical development. **5  5  2**

ix. Describe the role of Laboratory Information Management Systems (LIMS) in preclinical development. **5  5  2**

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# Marking Scheme

## PY3CO33 (T) Computer Applications in Pharmacy

**Q.1**

i) What is the base of the hexadecimal number system? **1**
Answer: c) 16

ii) In binary addition, what is the result of $(1)_2 + (1)_2$? **1**
Answer: d) $(10)_2$

iii) What is the standard markup language for creating web pages? **1**
Answer: c) HTML

iv) Which programming language is commonly used for adding interactivity to web pages? **1**
Answer: d) JavaScript

v) What technology is commonly used for automated dispensing of drugs in pharmacies? **1**
Answer: b) Barcode

vi) What technology is commonly used for patient monitoring in healthcare facilities? **1**
Answer: d) IoT

vii) What is the primary objective of bioinformatics? **1**
Answer: b) Analyzing and interpreting biological data using computational tools

viii) Which of the following is a key component of bioinformatics databases? **1**
Answer: c) DNA sequences

ix) Which system is commonly used for managing laboratory data, including experimental results and sample tracking? **1**
Answer: b) Laboratory Information Management System (LIMS)

x) Which software is specifically designed for analyzing chromatographic data, such as HPLC or GC results? **1**
Answer: c) Chromatographic Data Analysis (CDS)

**Q.2** Attempt any two:

i. What are the key steps involved in conducting a thorough requirement analysis and feasibility study for a software project, **5**
**4 Marks**
Highlighting their importance. **1 Mark**

ii. Explain the design and functionality of a Pharmacy Drug Database **5**
**2.5 Marks**
outlining its significance in pharmaceutical management.

**2.5 Marks**

iii. (a) Explain the concept of data flow diagrams in information systems analysis with their notations. **2.5**
Concept **1.5 Marks**
Data flow diagram notation **1 Marks**
(b) Describe the purpose of XML in web development. **2.5**
**2.5 Marks**

**Q.3** Attempt any six: Two questions from each section is compulsory.

### Section - A

i. Explain the importance of barcode medicine identification in pharmacy automation. **5 Marks** **5**

ii. Explain the concept of pharmacokinetics **2.5 Marks** **5**
and its significance in drug design. **2.5 Marks**

iii. Describe the application of computers in storing and retrieving drug information in pharmacy settings. **2.5 Marks** **5**
Also explain how does mobile technology contribute to medication adherence monitoring? **2.5 Marks**

### Section - B

iv. Discuss the importance of the National Center for Biotechnology Information (NCBI) databases in bioinformatics and the Immune Epitope Database (IEDB). **2.5 Marks Each** **5**

v. Describe the objective of bioinformatics database. **2.5 Marks** **5**
and their role in biological research. **2.5 Marks**

vi. Describe the importance of bioinformatics databases in facilitating vaccine discovery and development. **2.5 Marks** **5**
providing examples of key databases and their contributions to vaccine research. **2.5 Marks**

### Section - C

vii. Discuss the role of Text Information Management Systems (TIMS) in data analysis for preclinical development. **5 Marks** **5**

viii. Explain the significance of Chromatographic Data Analysis (CDS) in preclinical development. **5 Marks** **5**

ix. Describe the role of Laboratory Information Management Systems (LIMS) in preclinical development. **5 Marks** **5**

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