



## Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)

Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC

Coimbatore - 641 043, Tamil Nadu, India

### Master's Degree Examination – May 2025

#### II Semester

**Class : I P.G.**  
**Major : Biochemistry**

**Time: 3 Hours**  
**Max. Marks: 100**

#### 23MBII01 Bioinformatics in Health

##### Course Outcomes:

CO1: Obtain basic knowledge of health care database and Health Information Technology.

CO2: Understand the resources available and information retrieval from digital libraries.

CO3: Explore to understand big data in health care and their applications.

CO4: Gain knowledge about personalised medicine and how it may be used to treat a variety of diseases.

CO5: Thoroughly understand the drug development process and the numerous factors that can be used in their research.

#### Part A 10 x 1 = 10 Choose the Correct Answer

1. Lipinski's rule of five is used for CO4K6  
a. Docking    b. Similarity search    c. Drug likeness    d. Dynamics simulation
2. Select the following docking tool. CO1K2  
a. cDock    b. ICM    c. Both    d. None of the above
3. Expand the word - HIT. CO1K3  
a. Health Information Technology    b. Health In Technology  
c. Health Informatics Technology    d. Health Line Technology
4. Which of the following is an emerging trend in E-learning? CO2K1  
a. Traditional classroom learning    b. Postal communication  
c. Mobile learning    d. Radio broadcasting
5. Select the major components of big data? CO3K4  
a. HDFS    b. MapReduce    c. YARN    d. All of the above
6. \_\_\_\_\_ is the process of transforming unstructured text into a structured format to identify meaningful patterns and new insights. CO3K6  
a. Data mining    b. Text mining    c. File mining    d. Deep mining
7. The activity of drug-metabolizing enzymes often varies widely among healthy people, making metabolism highly variable. Which of the following factors is a major contributor to this variation? CO2K2  
a. Aging    b. Environmental factors    c. Gender    d. Race
8. What is a placebo? CO5K1  
a. Signed document of the recruited patient for the clinical trial procedures  
b. Fake treatment  
c. The subjects do not know which study treatment they receive  
d. Patients injected with placebo and active doses
9. Who is the father of bioinformatics? CO3K5  
a. HolgerHoos    b. Herv Philippe    c. Margaret Dayhoff    d. HaydarSengul
10. Which of the following gives people the best chance of survival? CO3K3  
a. chemotherapy    b. cancer screenings    c. healthy lifestyle choices    d. early diagnosis

**Part B** **5 x 6 = 30**  
**Answer ALL questions**  
**Each answer should not exceed 400 words or two pages**

- 11.a. What is bioinformatics? Discuss its major applications? CO1K2  
(or)
- 11.b. List out any three public databases related to human health. CO1K6
- 12.a. Explain Telemedicine and its role in the market. CO2K3  
(or)
- 12.b. What are the Moral and immoral views of electronic health records? CO2K1
- 13.a. Discuss any two public big data resources. CO3K5  
(or)
- 13.b. Write a note on medical image processing. CO3K4
- 14.a. Give your understanding about personalized medicine. CO4K1  
(or)
- 14.b. Preventive medicine: discuss in detail. CO4K2
- 15.a. What is clinical transition? Explain clearly. CO5K4  
(or)
- 15.b. Explain Protein therapeutics and other types. CO5K6

**Part C** **5 x 12 = 60**  
**Answer ALL questions**  
**Each answer should not exceed 800 words or four pages**

- 16.a. Discuss the Modern status of HI technology in India. CO1K3  
(or)
- 16.b. Write an essay on some organizations involved in HIT. CO1K6
- 17.a. Discuss the E-learning technologies and application in health sciences. CO2K5  
(or)
- 17.b. Write an Essay on digital based consumer health information. CO2K1
- 18.a. Explain in detail the Text mining on big data with necessary steps. CO3K1  
(or)
- 18.b. What is biomedical literature? How to handle the complex data of it? CO3K2
- 19.a. What is FDA and explain its role and its importance in medicine. CO4K5  
(or)
- 19.b. Pharmacogenomics vs. Big data analytics. Explain. CO4K2
- 20.a. Differentiate drug target identification and validation. CO5K4  
(or)
- 20.b. Discuss in Steps involved in Lipinski and ADMET process of Lead generation. CO5K3

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