THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LP 967] NOVEMBER 2019 **Sub. Code: 2967**

M.PHARM. DEGREE EXAMINATION
(PCI New regulations 2016)
SEMESTER-II
BRANCH-IV – PHARMACEUTICAL BIOTECHNOLOGY – MPB
PAPER III – BIOINFORMATICS AND COMPUTER TECHNOLOGY

Q.P. Code : 262967

Time : Three hours **Maximum : 75 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Explain various formats of protein and nucleic acid databases with its applications. Explain the role of National Center for Biotechnology Information in bioinformatics.

2. Explain the methods involved in pairwise sequence analysis and multiple sequence analysis with few diagrams.

II. Write notes on: **(7 x 5 = 35)**

1. Brief note on Data mining.
2. Write briefly on eukaryotic genome structure organisation.
3. Write use of PHYLIP in phylogenetic tree construction.
4. Write brief note on gene mapping and its applications.
5. Write a note on target discovery.
6. Explain the terms in brief:
   a) Algorithm b) DDBJ and PDB c) BLAST and FASTA
7. Explain the brief history of bioinformatics with a note on its application in biotechnology.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MPHARM 0921] SEPTEMBER 2021 Sub. Code: 2967
(OCTOBER 2020 EXAM SESSION)

M.PHARMACY DEGREE EXAMINATION
SEMESTER-II (PCI New regulations 2016)
PHARMACEUTICAL BIOTECHNOLOGY - MPB
PAPER III – BIOINFORMATICS AND COMPUTER TECHNOLOGY
Q.P. Code : 262967

Time : Three hours **Answer ALL Questions** **Maximum : 75 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Elaborate in detail about the Construction of Phylogenetic Tree.

2. a) What is structural database?
   b) Explain briefly about the sequence of database management and storage.

II. Write notes on: **(7 x 5 = 35)**

1. Explain about the Homology modeling.
2. How to interpret docking results?
3. Explain in detail about Sequence assembly.
4. Give a note on significance of proteome.
5. Explain the role of ligand libraries for high throughput screening.
6. Write a note on Topology fingerprint approach for prediction of protein.
7. Illustrate about the Surface mapping of proteins.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[M.PHARM 0922] SEPTEMBER 2022 Sub. Code: 2967
(APRIL 2022 EXAM SESSION)

M.PHARMACY DEGREE EXAMINATION
SEMESTER - II (PCI New regulations 2016)
PHARMACEUTICAL BIOTECHNOLOGY - MPB
PAPER III – BIOINFORMATICS AND COMPUTER TECHNOLOGY

Q.P. Code : 262967

Time : Three hours **Answer ALL Questions** **Maximum : 75 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Write a note on protein structures and protein BLAST. List out various secondary structure prediction methods and explain in brief with its significance.

2. Define biological databases. Classify various formats of databases with explanation and its uses in medical science.

II. Write notes on: **(7 × 5= 35)**

1. Write a note on the following
    a. Dothelix program (for DNA)
    b. NCBI- search engine.
    c. KEGG.
2. Explain the methods involved in multiple sequence analysis with a note on match and mismatch analysis.
3. Write a note on genome annotation.
4. Write note on post-translational modifications in eukaryotes.
5. Define the term bioinformatics and mention important milestones with different tools used with its applications.
6. Explain how machine learning is useful in prediction of drug formulations.
7. Write a note on PHYLIP program and its applications.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[M.PHARM 0823] **AUGUST 2023** **Sub. Code: 2967**

(APRIL 2023 EXAM SESSION)

M.PHARMACY DEGREE EXAMINATION
SEMESTER - II (PCI New Regulations 2016)
PHARMACEUTICAL BIOTECHNOLOGY - MPB
PAPER III – BIOINFORMATICS AND COMPUTER TECHNOLOGY

Q.P. Code: 262967

Time : Three hours **Answer ALL Questions** **Maximum : 75 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Explain Needleman - Wunsch and Smith- Waterman algorithms. Write a note on sequence alignment techniques and its importance.

2. Explain the basic concepts of Homology modeling methods and its potential applications in bioinformatics.

II. Write notes on: **(7 × 5= 35)**

1. Explain the advantages and disadvantages of BLAST and modified BLAST tools.
2. Write a note on prokaryotic genome organization.
3. Write a note on docking and methods of protein ligand docking with its significance.
4. Write briefly on the process of hit to lead in drug discovery.
5. Write a note on applications of data mining and internet role in bioinformatics.
6. Detailed note on various databases used in bioinformatics and its applications.
7. Explain the steps involved in gene amplification using PCR and add a note on primer designing.

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