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**VH—02—2024**

**FACULTY OF SCIENCE**

**B.Sc. (Third Year) (Sixth Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(New Pattern)**

**BIOINFORMATICS**

**(Concept of Genomics)**

**(Tuesday, 26-11-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—Three Hours*

*Maximum Marks—75*

*N.B. :—* (i) Attempt *all* questions.

(ii) *All* questions carry equal marks.

1. Write a note on Human Genome Project. 15

*Or*

(a) Discuss the “Omics” revolution. 8

(b) Write a note on C-value paradox. 7

2. Write a note on Illumina (solexa) sequencing. 15

*Or*

(a) Discuss various assembly approaches. 8

(b) Discuss genome databases. 7

P.T.O.

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3. Write a note on pharmacogenomics. 15

*Or*

(a) Discuss metagenomics. 8

(b) Write a note on cyanobacteria genomics. 7

4. Write a note on applications of genomics in pharmaceuticals. 15

*Or*

(a) Describe in detail biomarker discovery. 8

(b) Discuss application of genomics in agriculture. 7

5. Write short notes on (any *three*) : 15

(a) C-value paradox

(b) Shotgun sequencing

(c) Annotation

(d) Structural genomics

(e) Transfection.

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**VH—07—2024**

**FACULTY OF SCIENCE**

**B.Sc. (Third Year) (Sixth Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(New Pattern)**

**BIOINFORMATICS**

**Paper CCBI-2F**

**(Concepts of Proteomics)**

**(Thursday, 28-11-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—Three Hours*

*Maximum Marks—75*

*N.B. :—* (i) All questions are compulsory.

(ii) Draw neat well labelled diagrams if necessary.

1. Define Proteome. Explain in detail concept of proteomics. 15

*Or*

(a) Write applications of proteomics. 8

(b) What is peptide bond ? Describe amino acid structure. 7

2. How to determine protein 3D structure ? 15

*Or*

(a) Write a note on protein processing in ER and golgi bodies. 8

(b) What is the role of chaperons ? 7

P.T.O.

3. Explain protein-isolation from sample and its sequencing. 15

*Or*

(a) How the proteolytic cleavage is done ? 8

(b) How the attachment of oligosaccharide or prosthetic groups to create mature protein is done ? 7

4. Explain protein 3D structure on protein structure database. 15

*Or*

(a) Explain 1D-2D-SDS-PAGE. 8

(b) What is Isoelectric focusing ? 7

5. Write short notes on (any *three*) : 3×5=15

(a) Amino acid structure

(b) Formation of disulphide bond

(c) HPLC

(d) Ion exchange chromatography

(e) Protein Array.

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**VH—20—2024**

**FACULTY OF SCIENCE**

**B.Sc. (Sixth Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(New Pattern)**

**BIOINFORMATICS**

**DSEBI-4F**

**(Drug and Molecular Modeling)**

**(Tuesday, 3-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—3 Hours*

*Maximum Marks—75*

**N.B. :-** (i) All questions are compulsory.

(ii) All questions carry equal marks.

(iii) Draw well labeled diagrams wherever necessary.

1. What is drug ? Explain in detail classification of drugs. 15

*Or*

(a) Write about absorption and distribution of drugs. 8

(b) Explain how drug bind to plasma proteins. 7

2. Explain in detail drug receptor interaction. 15

*Or*

(a) Explain structural based drug design. 8

(b) Describe in detail mechanism of drug molecule. 7

P.T.O.

3. Explain in detail enzyme inhibition strategies and their induction. 15

*Or*

(a) Explain in detail role of cytochrome p450. 8

(b) Describe in detail effect of drug on human organism. 7

4. Write in detail about chemotherapy and radiation therapy of drug molecule. 15

*Or*

(a) Write about drug database with example. 8

(b) Explain in detail antimetabolites. 7

5. Write short notes on (any *three*) : 15

(a) Drug molecule

(b) QSAR

(c) Drug target

(d) Effect of drug on organism

(e) Chemotherapy

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**VH—13—2024**

**FACULTY OF SCIENCE**

**B.Sc. (Sixth Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(New Course)**

**BIOINFORMATICS**

**(Metabolomics)**

**(Saturday, 30-11-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—Three Hours*

*Maximum Marks—75*

*N.B. :—* (i) All questions are compulsory.

(ii) All questions carry equal marks.

(iii) Draw well labelled diagrams wherever necessary.

1. Explain in detail difference between anabolism and catabolism with example. 15

*Or*

(a) Write about anabolism and catabolism with example. 8

(b) Explain in detail applications of metabolism. 7

2. Explain in detail pentose phosphate pathway. 15

*Or*

(a) Describe in detail glycogen synthesis pathway. 8

(b) Write about fatty acid synthesis. 7

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3. Explain in detail HPLC technique with their applications. 15

*Or*

(a) Write about metabolite separation techniques. 8

(b) Describe in detail Mass Spectroscopy technique. 7

4. Explain in detail full genome annotation by using methods. 15

*Or*

(a) Describe in detail organism specific metabolic pathways. 8

(b) Write about comparison of metabolic pathways. 7

5. Write short notes on : 15

(a) Metabolites

(b) Gas Chromatography

(c) Metabolom

(d) Toxicity assessment

(e) Metagenomics.

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**VH—19—2024**

**FACULTY OF SCIENCE & TECHNOLOGY**

**B.Sc. (BI) (Third Year) (Sixth Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**(New Pattern)**

# BIOINFORMATICS

Paper-DSEBI-4F

(Programming with PHP)

**(Tuesday, 3-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—3 Hours*

*Maximum Marks—75*

*N.B. :- (i) Attempt all questions.*

(ii) Draw neat and well labelled diagrams wherever necessary.

1. Explain decision making statements with example. 15

*Or*

- (1) Explain capturing form data with example. 8

- (2) Explain PHP strings with example. 7

2. Explain PHP functions and its types with example. 15

$$Or$$

- (1) Explain library functions with example. 8

- (2) Explain while and do while loop with example. 7

P.T.O.

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3. Explain PHP operators with example. 15

*Or*

(1) Explain recursive function with example. 8

(2) Explain PHP strings with example. 7

4. Explain PHP Array and its types with example. 15

*Or*

(1) Explain PHP login with example. 8

(2) Explain PHP file uploading with example. 7

5. Write short notes on any *three* of the following : 15

(a) Get & Post Methods

(b) HTML Form with PHP

(c) Exception Handling

(d) Dealing with Multivalued Field

(e) Browser Redirection.

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