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NH—25—2023

FACULTY OF SCIENCE

B.Sc. (Second Year) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(New Pattern)

BIOINFORMATICS

Paper-DSEBI-4D

(Biochemical Techniques)

(Thursday, 07-12-2023) **Time : 2.00 p.m. to 5.00 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, if necessary.

1. Write in detail about light microscopy and differentiate between simple and compound microscopy. 15

Or

(*a*) What is electron microscopy ? Explain (TEM/SEM). 8

(*b*) Define spectroscopy. Describe electromagnetic spectrum. 7

2. Define chromatography. Explain types in brief. 15

Or

(*a*) Draw structure of paper chromatography along with the working principle. 8

(*b*) Explain column chromatography. 7

P.T.O.

3. Describe principle of centrifugation and its components. 15

Or

(*a*) Write down the standard working principle of density gradient centrifugation. 8

(*b*) Write differential centrifugation in detail. 7

4. Draw structure of electrophoretic unit and mention general principle. 15

Or

(*a*) Differentiate between PAGE and SDS-PAGE. 8

(*b*) What are the factors affecting on electrophoretic mobility. 7

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

(*a*) Applications of spectroscopy

(*b*) Applications of centrifugation

(*c*) Ion exchange chromatography

(*d*) Centripetal force-centrifugal force

(*e*) Isoelectric focusing (IEF).

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NH—11—2023

FACULTY OF SCIENCE

B.Sc. (Second Year) (Fourth Semester)

EXAMINATION

NOVEMBER/DECEMBER, 2023

(New Course)

BIOINFORMATICS

Paper-CCBI-2D

(Database Management System)

(Saturday, 2-12-2023) **Time : 2.00 p.m. to 5.00 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 store procedure and function. 15

Or

(*a*) Explain DML commands in detail with example. 8

(*b*) Explain DDL commands with example. 7

2. Explain principle of RDBMS. 15

Or

(*a*) What is cursor. 8

(*b*) Explain view command in detail. 7

P.T.O.

3. Explain joint in detail. 15

Or

(*a*) Advantages of using procedure. 8

(*b*) Explain cursor loop. 7

4. Explain PL-SQL in detail. 15

Or

(*a*) Explain PL-SQL block. 8

(*b*) Explain oracle transaction. 7

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

(*a*) Explain alter table with example.

(*b*) Explain sys. date function.

(*c*) Explain dual table.

(*d*) Comparison between store procedure and function.

(*e*) Query for create table and interesting value in the table.

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NH—18—2023

FACULTY OF SCIENCE

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(New Course)

BIOINFORMATICS

Paper-CCBI-3A

(Microbiology and Cell Biology)

(Wednesday, 06-12-2023) **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.

(*iii*) Draw diagrams wherever necessary.

1. Describe in detail microbial phylogen and current classification of bacteria. 15

Or

(*a*) Explain in detail Gram positive cell wall. 8

(*b*) Explain in detail Gram negative cell wall. 7

2. Describe in detail isolation and purification of pure culture. 15

Or

(*a*) Explain in detail continuous culture. 8

(*b*) Write a note on factors affecting microbial activity. 7

3. Discuss prokaryotic and eukaryotic cell. 15

P.T.O.

Or

(*a*) Explain in detail diversity of cell size and shape. 8

(*b*) Explain in detail structural organisation of Eukaryotic cell. 7

4. Explain in detail cell cycle. **15**

Or

(*a*) Describe in detail mitosis. 8

(*b*) Write a note on simple diffusion. 7

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

(*a*) Structure of bacterial cell

(*b*) Synchronous culture

(*c*) Lipids

(*d*) Stanley Miller experiment

(*e*) Na/k ion channel.

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NH—17—2023

FACULTY OF SCIENCE

B.Sc. (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(New Course)

BIOINFORMATICS

(Programming in Perl)

(Tuesday, 5-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

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

(*ii*) *All* questions carry equal marks.

(*iii*) Write programs wherever necessary.

1. Describe in detail about Perl and its benefits. 15

Or

(*a*) Write a program to store and concatenate sequences in different ways. 8

(*b*) Give an account on individual approaches while programming. 7

2. Write in detail about pattern matching in Perl. 15

Or

(*a*) Write about file handling in Perl. 8

(*b*) Give an account on arrays in Perl. 7

P.T.O.

3. Describe in detail about hashes. 15

Or

(*a*) Give an account on 'for each' statement in Perl. 8

(*b*) Describe while loops in Perl. 7

4. Write in detail about genetic code and codon table. 15

Or

(*a*) Give an account on FASTA format. 8

(*b*) Describe in brief about Python programming language. 7

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

(*a*) Translating DNA into proteins

(*b*) BioPerl

(*c*) Repeating string operator

(*d*) Text editors in Perl

(*e*) Continue statement.