	Μ	Sc. (Semester - II) (CBCS) Ex. Bioinforma	tics
		ADVANCED BIOIN	
Time: 2			Max. Marks: 70
Instruc	tions	 1) Section-1, Question 1 is compuls 2) Attempt any four questions from 3) Figures to the right indicate full m 4) Answer to the Section-I and Sect Booklet only. 	Section-II.
		Section –	I
Q.1	-	ewrite the sentence after choosing	g the correct answer from the 07
		iven alternatives:) In S-W algorithm the trace back be	gins at the value found
		anywhere in the matrix. a) Minimum c) Maximum	b) Zerod) None of these
	2) KEGG stands for a) Kyoto Encyclopedia of Genome b) Kyoto Encyclopedia of Genes a c) Kyoto Encyclopedia Graph d) All of these 	
	3) ORF stands for a) Old Reader Field c) Open Reading frame 	b) Open Reading Flankd) None of these
	4	 Each amino acid corresponds to a a) 120⁰ c) 85⁰ 	b) 100 ⁰ b) None of these
	5	 In Dali-lite program graphical resul a) Jet c) Jmol 	t is viewed by viewer. b) Jlib d) All of these
	6	 Phylogenetic relationship can be s a) Data retrieving tool c) Dendogram 	hown by b) Data search tool d) Genbank
	7		g, Evaluating and Manipulating Protein Sequences and structures. b) Dotlet d) T-Coffee
I	,	Definition:) Coiled coils	

- - 2) Genomics

 - 2) Contention
 3) Phylip
 4) Molecular Clock
 - 5) Proteomics
 - 6) Introns
 - 7) EC

Seat No.

Set Ρ

- 7

Section – II

Q2	Explain the Needleman and Wuncsh algorithm for pair wise alignment and its implementation.	14
Q3	Explain molecular taxonomy and phylogeny in details and also add a detailed a note on maximum parsimony and maximum likelihood methods.	14
Q4	Give a detailed description on KEGG pathway database and add a note on its applications.	14
Q5	 Answer any two of the following. a) Explain SNP database in details. b) Explain the Mega blast algorithm and add a note of BLAST2. c) Give a description on the secondary structural elements. 	14
Q6	 Write short note any two of the following. a) UPGMA b) EXPASY Server c) PAM Matrices 	14

Time: 2¹/₂ Hours **Instructions:** 1) Section-I, Question 1 is compulsory. 2) Attempt any four questions from Section-II. 3) Figures to the right indicate full marks. Booklet only. Section – I given alternatives: 1) _____ belongs to three domains of life. a) Archaea b) Bacteria d) All of these c) Eukarya to recipient cell through virus. a) Transduction b) Conjugation c) Transformation d) None of these a) Lag b) Log d) Decline c) Stationary 4) Sterilization by UV light is called b) Chemical a) Wet

- 4) Answer to the Section-I and Section-II are to be written in same answer
- Q.1 Rewrite the sentence after choosing the correct answer from the A)

Bioinformatics

- 2) In _____ process the genetic material is transferred from donor
- 3) In _____ phase the growth rate is equal to death rate.
 - c) Physical d) None of these
- 5) DNA is transferred into the cells that produce reproductive cells, eggs or sperm, in the body is called _____ gene therapy.

b) Probes

d) All of these

- a) Somatic b) Germ line
- c) Both a and b d) None of these
- 6) _____ classified viruses based on genetic material.
 - b) Watson a) Baltimore d) None
 - c) Ion Wilmut
- Radioactive compounds are used in _____
 - a) Primers
 - c) Plasmids
- B) **Definitions.**
 - 1) Totipotency
 - 2) Endospore
 - 3) 16S rRNA
 - 4) MC Site
 - 5) T4 Bacteriopage
 - 6) SCO
 - 7) ddNTPs

07

SLR-UC-62



07

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018 MICROBIOLOGY AND BIOTECHNOLOGY

Seat No.



Section – II

Q.2	Answer any four of the following. Describe the single cell protein and single cell oil. Add a note their applications.	14
Q.3	Explain bacterial artificial chromosomes and yeast artificial chromosomes.	14
Q.4	Explain the techniques for isolation of microorganisms.	14
Q.5	 Answer any two of the following. a) Applications of recombinant DNA Technology. b) Structural staining in bacteria. c) Growth kinetics. 	14
Q.6	 Write short note any two of the following. a) Mycoplasma b) Different media used for plant tissue culture c) Bacterial transduction 	14

Seat No.		Set	F
	-	ter - II) (CBCS) Examination Mar/Apr-2018 Bioinformatics BIOCHEMISTRY AND IMMUNOLOGY	
Time: 2	21/2 Hours	Max. Mar	′ks: 7
Instruc	 2) Attempt an 3) Figures to 1 	Question 1 is compulsory. ly four questions from Section-II. the right indicate full marks. the Section-I and Section-II are to be written in same ans ly.	swer
		Section – I	

Q.1

Section – I

1	A)	Rewrite the sentence after choosing the correct answer from the given alternatives:	07
		 Standard free energy is denoted by a) ΔE° b) ΔG° c) ΔH° d) ΔF° 	
		 2) The name protein was suggested by a) Kuhne b) Leninger c) Watson d) Brezelius 	
		 3) Enzymes belong to the class of proteins. a) Fibrous b) Globular c) Membrane d) None of these 	
		 4) is a storage polysaccharide. a) Starch b) Cellulose c) Pectin d) Chitin 	
		5) is an example of agranulocyte. a) B cell b) Basophil c) Neutrophil d) Eosinophil	
		 6) The agent which induces the immune response is a) Allogen b) Autogen c) Antigen d) Antibody 	
		 7) Interleukins are produced by a) RBCs b) WBCs c) Muscle cells d) None of these 	
	B)	Definitions: 1) Enzyme 2) Thermodynamics 3) Cholesterol 4) Vitamin 5) Neutrophil 6) Autoimmunity	07

7) Monoclonal antibody

Max. Marks: 70

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Ρ

14

Section – II

	Answer any four of the following.
Q2	Explain the structural classification of proteins.
03	Write a detailed note on innate immunity

Q3	Write a detailed note on innate immunity.	14
Q4	Explain different types of antigen antibody interactions.	14
Q5	 Answer any two of the following. a) Write a note on functions of vitamins. b) Add a note on classifications of nucleic acids. c) Define enzyme. Write a note on their classification. 	14
Q6	 Write short notes on any two. a) Protein folding b) Cytokines c) Hybridoma technology 	14

		 4) Answer to the Section – I and Section – II are to be written in same answer Booklet only. 	
		Section – I	
.1	A)	Complete the sentences by selecting correct answer from the given alternatives:01) Sterilization reefers to a) Destruction of Microorganisms c) Both a and bb) Removal of Microorganisms 	7
		 2) Rheology property of fermentation Broth a) Viscosity b) Oxygen c) Temperature d) All of these 	
		 are used for the mixing of broth and culture in fermentation process. a) Impellers b) Enhancers c) Emulsifiers d) None of these 	
		 4) Out of following is found to be most carcinogenic. a) PAH b) Heavy metals c) Textile dyes d) Air pollutants 	
		 5) Phenyl acetic acid acts as a precursor for the production of a) Penicillin V b) Penicillin G c) Penicillin M d) Cyclosporine 	
		 6) In Bioreactors are used to prevent vortex formation. a) Spargers b) Impellers c) Baffles d) Both b and c 	
		 7) Amylase is a starch hydrolysing enzyme can be obtained by using a) A. oryzae b) S. Cerevisiae c) B. licheniformis d) Both a and c 	
	B)	Definitions.01) Microbial Nutrition2) Microbial Enzyme3) Scale up4) Baffles5) Bioremediation	7

Instructions: 1) Section-I is compulsory.

6) Bioindicators 7) Xenobiotic

2) Attempt any four questions from Section - II

- 3) All Questions carry equal marks.
- 3) Figures to the right indicate full marks.
- Q.

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018 **Bioinformatics** INDUSTRIAL AND ENVIRONMENTAL BIOTECHNOLOGY

- SLR-UC-64
 - Set Ρ

Max. Marks: 70

Seat No.

Time: 21/2 Hours

Section – II

Answer any four	of the following.
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Q2	Describe about the microbial cell cultivation system.	14
Q3	Discuss in brief on kinetics of microbial growth.	14
Q4	Discuss the on energy source involved in fermentation process.	14
Q5	 Answer any two of the following. a) Batch Fermentation b) Citric acid production c) Solid liquid separation 	14
Q6	 Answer any two of the following. a) Non-conventional energy sources b) Biosensor c) Effect of heavy metals on environment 	14

No. M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018 **Bioinformatics**

BIOLOGICAL SIMULATION AND MODELING

Time: 2¹/₂ Hours

Seat

Instructions: 1) Part-1, Question 1 is compulsory.

- 2) Attempt any four questions from Part-II.
- 3) Figures to the right indicate full marks.
- 4) Answer to the Part-I and Part-II are to be written in same answer Booklet only.

Part – I

- Q.1 Rewrite the sentence after choosing the correct answer from the 07 A) given alternatives:
 - 1) x = 4.5, y = 2 print x//y? What will be the output?
 - a) 2.0 b) 10.0 c) 5.0 d) 1.0
 - 2) The ______ function creates a Python file object.
 - a) fopen() b) open()
 - d) None of these c) fileopen()
 - Python is ____ _____ type of language.
 - a) Dynamic b) Semi – dynamic
 - c) Static d) None of these
 - 4) X = true, y = false, z = false, if x or y and z: print "yes" else: print "no"?
 - a) Yes b) No c) Compilation error d) None of these
 - Simulation is mimicking of _____
 - b) Real event a) Virtual event
 - c) Both a and b d) None of these
 - Simulation finds its application in _____
 - b) Chemistry a) Physics d) All
 - c) Biology
 - Energy is a parameter of _____ b) MC
 - a) MD d) None
 - c) Both a and b

Definition: B)

- 1) Static
- 2) Classes
- 3) Object
- 4) Event
- 5) Population model
- 6) Energy minimization
- 7) AutoDock

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Max. Marks: 70

Part – II

Q2	Add a note on biological models of simulation.	14
Q3	Write a note on molecular mechanics with reference to bio-molecules.	14
Q4	Explain string functions in python with examples.	14
Q5	 Answer any two of the following. a) Add a note on full geometry optimization. b) Explain python editor in detail. c) Applications of simulations. 	14
Q6	 Write short note any two of the following. a) Examples of molecular dynamics b) Files in python c) Input and output 	14

		3LK-0C-73
Seat No.		Set P
	M.S	Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018 Bioinformatics CLINICAL BIOINFORMATICS
Time:	2½ ł	Hours Max. Marks: 70
Instru	ctio	 ns: 1) Section - I, Question 1 is compulsory. 2) Attempt any four questions from Section – II. 3) Figures to the right indicate full marks. 4) Answers to the Section I and Section II are to be written in same answer booklet only.
		Section – I
Q.1	A)	Rewrite the sentence after choosing the correct answer from the 07 given alternatives:
		 1) Malaria is a type of diseases. a) Fungal b) Bacterial c) Virus d) Protozoa
		 2) is the Next Generation sequencing platforms. a) Roche 454 b) Solexa c) SOLiD d) All
		 3) Bacteremia is a) Infection of blood b) Infection of body c) Infection of lung d) Infection of brain
		 4) CPT – 4 is procedural terminology system. a) Current b) Clinical c) Cytology d) All
		 5) Human genome project was started in year. a) 1990 b) 1991 c) 2000 d) 2003
		6) ICD is maintained bya) WNOb) WHOc) UNSECOd) Australia
		 7) Protein – DNA interaction study carried by method. a) RNA Seq b) ChIp c) FAST Q d) FAST X
	B)	Definitions.071) FAST Q2) Mapviewer3) Transcriptomics4) Commensalism5) Seleve

Seat

5) Solexa

6) Ensemble7) ADR

Section – II

Q.2	Explain in detail the Neurodegenerative disorders.	14
Q.3	Explain Basic Next generation sequencing chemistry in details and note on microarray data analysis.	14
Q.4	Explain in human Genome Project with its Applications. Add note on Challenges of HGP.	14
Q.5	 Answer any two of the following. a) Explain Medical coding steps in details. b) Describe host-pathogen interactions. c) Explain transcriptomics in details. 	14
Q.6	 Write short notes on any two. a) Genome sequencing projects b) ICD – 10 c) NGS applications 	14

Set

Seat	
No.	

M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018 Bioinformatics

RESEARCH METHOLOGY AND IPR IN BIOINFORMATICS

Time: 2 1/2 Hours

Instructions: 1) Part-I, Question 1 is compulsory

- 2) Attempt any four questions from Part-II
- 3) Figures to the right indicate full marks.
- Answer to the Part-I and Part-II are to be written in same answer Booklet only.

Part – I

- Q.1 A) Rewrite the sentence after choosing the correct answer from the 07 given alternatives:
 - 1) ANOVA stands for _
 - a) Analysis Of Variable
 - c) Analysis Of Variance
- b) Analysis Of Vector
- d) None
- 2) Research means ____
 - a) Enunciating a problem
 - c) Collection of data
- b) Framing a hypothesis
 - d) All of these
- _____ provide and promote an effective system of plant variety protection.
 - a) WIPO
 - c) Patent

- b) UPOV
- d) All of the above
- 4) Analyzing data which was collected by others is called ____
 - a) Survey research
 - c) Content analysis
- b) Secondary analysis
- d) Primary analysis
- 5) Research done at one time is called _
 - a) Replication b)
 - c) Cross- sectional
- b) Correlational
- d) Longitudinal
- 6) _____ is a preferred sampling method for the population with finite size.
 - a) Area sampling
 - c) Purposive sampling
- 7) Kolhapuri Chappal is _____.
 - a) Patent
 - c) Trade mark

B) Definitions

- 1) Trade Design
- 2) Impact factor
- 3) Audio-visual aids
- 4) Sampling size
- 5) Impact factor
- 6) Action research
- 7) ISSN

- b) Cluster samplingd) Systematic sampling
- b) Geographical indication
- d) Trade secrete

Part – II

Q2	What is the meaning research? Explain in detail objectives and characteristics of research.	14
Q3	Give the different guidelines for writing introduction and materials & methods in the preparation of manuscript.	14
Q4	What is data collection? Explain different data collection methods?	14
Q5	 Answer any two of the following a) Write a note on advantages and disadvantages of PBR. b) Write a note on procedure of patenting in India. c) Write a note on Research Questions. 	14
Q6	 Answer any two of the following a) Preparation of poster for conference b) ANOVA c) Author instructions for IJBT 	14

Seat No. M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018 **Bioinformatics** EMERGING AREAS OF BIOINFORMATICS

Time: 2¹/₂ Hours

Instructions: 1) Part-1, Question 1 is compulsory

- 2) Attempt any four questions from Part-II
- 3) Figures to the right indicate full marks.
- 4) Answer to the Part-I and Part-II are to be written in same answer Booklet only.

Section – I

- A) Rewrite the sentence after choosing the correct answer from the Q.1 07 given alternatives:
 - 1) _____ are the immunoinformatics tools.

a) V-Quest	b) Epimatrix
c) TAP	d) All

The size of the nanoparticles are analyzed by _____.

a)	UV	b)	SEM
\sim	ETID	d)	A II

C) FIIR	a) Ali

- SMILES is _____
 - a) Simplified Molecular input line entry system.
 - b) Simple Molecular input line entry system.
 - c) Simple Molecular index line entry system.
 - d) Simplified Molecular index line entry system.
- is a federation of database organization access the world.

 a) Catalogue of life 	b) Vplants
c) TDWG	d) TIPR

- 5) _____ are the descriptors derived from Molecular formula.
 - a) 1D b) 3D d) 0D
- c) 2D

6) Biodiversity informatics was coined by _____.

- a) Ernst Haeckel b) John Crenter c) John whiting d) None
- 7) _____ predicts whether an amino acid substitution affects protein function.
 - a) Polyphen-2 b) SIFT c) KABAT d) IEDB
- **Definitions:** B)
 - 1) ADMET
 - 2) LSID
 - 3) Bucky Ball
 - 4) Species 2000
 - 5) SNV
 - 6) Cancer informatics
 - 7) QSAR

07

SLR-UC-77

Set



Max. Marks: 70

Ρ

Section – II

Q.2	What is biodiversity informatics? Explain in detail national, regional and global biodiversity information system and networks?	14
Q.3	Explain chemical file formats in detail? Add a note on SMILES notation.	14
Q.4	Define immunoinformatics? Explain the future of computational modeling prediction in clinical immunology.	14
Q.5	 Answer any two of the following. a) Explain GBIF database in detail. b) Synthesis of silver nanoparticles by biological method c) Explain chemical structure representation. 	14
Q.6	 Write short notes on any two. a) ChEMBL b) Bottom up and top down approach c) SIFT and Polyphen-2. 	14