Set	
No.	

M.Sc. (Semester - I) (New) (CBCS) Examination: Oct/Nov-2022 (BIOINFORMATICS) **Basic Bioinformatics**

Day & Date: Monday, 13-02-2023 Time: 03:00 PM To 06:00 PM

Instructions: 1) Q. Nos. 1 and. 2 are compulsory.

2) Attempt any three guestions from Q. No. 3 to Q. No. 7 3) Figure to right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives. A)

- ENA database is get updated on 1) basis.
 - Daily Weekly a) b)
 - Monthly d) every two months C)
- 2) database is used to search homologous sequences from the databases.
 - BLAST b) BLOCK a)
 - C) Swiss-Prot d) ENTREZ
- 3) Support Vector Machine is a learning algorithms.
 - Supervised Unsupervised b) a)
 - Clustering Density C) d)

term is used when the DNA, RNA, or protein sequences, shared 4) ancestry in the evolutionary history of life.

- Orthologous a) b) Ancestor
- Homology C) d) Paralogous

database is used to characterize a protein family. 5)

- TrEMBL b) PRINTS a)
 - PIR NRL-3D, C) d)
- a tree in which a special ("labeled") node is singled out. 6)
 - Unrooted tree Rooted tree a) b)
 - auide tree d) dendrogram tree C)

algorithm is used by local alignment.

- Needleman and Wunsch b) Smith-Waterman a)
- BLAST PAM C) d)
- 8) database is a microarray gene expression database studying in bioinformatics.
 - SWISS-PROT b) GEO a)
 - DDBJ d) EST C)
- BLAST algorithm used for sequence analysis of proteins and 9) nucleotides was developed by a)
 - Margaret Dayhoff b)
 - **David Lipman** C) d)
- UPGMA is _____ based method for phylogenetic tree construction. 10)
 - a) Distance Number C)

7)

- b)
- d)

Max. Marks: 80

10



	B)		in the blanks.	06
		1) 2)	is a genome browser for vertebrate genomes. is one of the FASTA variant which compares a protein query to a DNA database.	
		3)	Database was collaboratively by the department of medical biochemistry at the University of Geneva and the EMBL.	
		4) 5)	Mention 3 neural networks types a Unique constant code given to each sequence in ENA database Synthetic.	Э
		6)	Sequences and patented sequences are deposited in databases.	
Q.2	Ans a) b) c) d)	Write Write Expla	he following. e a note on methods of Phylogenetic tree construction. e a note on different neural network. ain in detail about scoring matrices. cribe different BLAST variants.	16
Q.3	Ans a) b)	Expla	he following. ain the PIR, MIPS and SWISS-PROT database. ain GenBank Sequence file format in detail.	16
Q.4	Ans a) b)	Expla	he following. ain PIR, MIPS, SWISS-PROT. ribe Phylogenetic software MEGA.	16
Q.5	Ans a) b)	Expla	he following. ain Genome database in detail with its applications. e a note on application of HMM in sequence and structure analysis.	16
Q.6	Ans a) b)	Expla	he following. ain Types of Phylogenetics tree. ain internet and its role in bioinformatics.	16
Q.7	Ans a) b)	Expla	he following. ain dot plot and dynamic programming or sequence analysis. a note on elements of phylogeny.	16

			SLR-GC-2					
Seat No.			Set P					
	M.Sc. (Semester - I) (New) (CBCS) Examination: Oct/Nov - 2022 (BIOINFORMATICS) Cell Biology and Genetics							
		esday, 14-02-2023 1 To 06:00 PM	Max. Marks: 80					
Instructio) Question No. 1 and 2 are compu 2) Attempt any 3 questions from Q 3) Figures to the right indicate full r	No. 3 to Q. No. 7.					
Q.1 A)	Chc 1)	, , , ,	n the options. 10 Jucleus /litochondria					
	2)	, , , ,	ohic cell. acteria irus					
	3)		tonomous cell organelle. olgi complex ell membrane					
	4)	DNA replication carried out in a) G_1 b) S c) G_2 d) G_2						
	5)	The genotype ratio of F2 generatis a) 1:2:1 b) 2	::2					
	6)	Histone proteins are found assoc a) Animal b) B	:1 iated with genome of cell. acteria rotozoa					
	7)	The most abundant type of RNA a) tRNA b) n						
	8)	The coding regions of DNA are cara) Intronsb) Ec) Repetitive DNAd) F						

		9)	e a	xp)	ression in	onad disco 	b) d)	Dpero Pla Viru	nts	lel of re	egulati	on of ge	ene	
		10)	a c		is kno H1 H2B	own as link	er histo b) d)	one pi H2A H4						
	B)	True 1) 2) 3) 4) 5) 6)	A T Ic T th A e	he he he he he ne xp	eterotroph e membrai channels e nuclear p nucleus a intron is a ressed or	n is an organ allowing the ores regul nd the cyto ny nucleoti operative in ructural an	ding the le pass ate the oplasm ide seq in the fi	e vacu age o trans uence nal R	uole is f ions portati e within NA pro	knowr across ion of r n a ger oduct.	n as to the m nolecu ne that	noplast embrar iles bet is not	ne.	06
Q.2	Ans a) b) c) d)	 Describe structure of nucleus with neat labeled diagram. Describe structure of different types of RNA. Explain structure of ribosome with neat labeled diagram. 				16								
Q.3	Ans a) b)							16						
Q.4	Ans a) b)	Expl	lair	n ir	ollowings n detail pr luid mosa	ocess of a	poptosi	S.						16
Q.5	Ans a) b)	Write	ea	a s		s. on Mendel karyotic ge								16
Q.6	Ans a) b)	Dese	cri	be	•	s. cle model es of mutati		replic	cation.					16
Q.7	Ans a) b)	Write	ea	a n	•	s. st translation of Lactos				diagra	am.			16

Set No.			Set	Ρ				
	M.Sc. (Semester - I) (New) (CBCS) Examination: Oct/Nov-2022 (BIOINFORMATICS) Introduction to HTML & Biostatistics							
		ednesday, 15-02-2023 Max To 06:00 PM	. Marks	: 80				
Instr	2) Q. Nos. 1 and. 2 are compulsory.) Attempt any three questions from Q. No. 3 to Q. No. 7) Figure to right indicate full marks.						
Q.1	A) Cho 1)	ose correct alternative. (MCQ) The identification of drugs through the genomic study is called _ a) Genomics b) Pharmacogenomics c) Pharmacogenetics d) Cheminformatics		10				
	2)	is the HTML documents root tag.a) <head>b) <body>c) <title>d) <html></th><th></th><th></th></tr><tr><th></th><th>3)</th><th> arrtibute is used for data binding.a) datasrcb) mayscriptc) named) datafld</th><th></th><th></th></tr><tr><th></th><th>4)</th><th>In HTML, how do we insert an image using
a) <imgsrc = "jtp.png" /> b) <imghref = "jtp.png" />
c) d) <imgurl = "jtp.png" /></th><th></th><th></th></tr><tr><th></th><th>5)</th><th>tag is used in the options present in the drop-down select
lists.
a) <list> b) <option>
c) <dropdown> d) <select></th><th>lion</th><th></th></tr><tr><th></th><th>6)</th><th> Standard deviation is a) The square root of variance. b) Measured using the unit of the variable. c) Has values generally comparable with the average value. d) The square of variance. </th><th></th><th></th></tr><tr><th></th><th>7)</th><th> is the relative measure of dispersion? a) Standard deviation b) Co efficient of quartile deviation c) Range d) Mean deviation </th><th></th><th></th></tr><tr><th></th><th>8)</th><th>Nationality is an example oflevel of measurement.a) Ordinalb) Nominalc) Ratiod) Interval</th><th></th><th></th></tr><tr><th></th><th>9)</th><th>If a variable can take any value between 0 and 15 then this variablecalled a variable.a) Continuousb) Discrete and quantitationc) Discreted) Continuous and qualitation</th><th>ve</th><th></th></tr></tbody></table></title></body></head>						

		10) of the a) Opera c) Chrom	e following doesn't supp e	ort th b) d)	ie MP3 format. Safari Firefox	
	B)	 Any represe Hypothesis Square of S The techniq In HTML the 	tandard normal variate ue ANOVA was develop e <hr/> tag is used for e which is useful for me	ulatic is oed b	on completely is known as y	06
Q.2	a) b)	Write a note on di What is Marquee?	f span tag? Give examp fference between XML	and H		16
Q.3	Ans a) b)	swer the following. What is the difference between HTML elements and tags? Explain Describe the test for significance of population correlation co efficient.				
Q.4	a)		est. Write a note on its a sted webpage in HTML.	pplic	ation.	10 6
Q.5	a)	e 1				
Q.6	Ans a) b)	wer the following Describe HTML la Distinguish betwe		data	with example.	10 6
Q.7			formatting tags in HTMI oplication and scope of		atistics.	10 6

Set No.				Set	Ρ				
	M.Sc. (Semester - I) (New) (CBCS) Examination: Oct/Nov-2022 (BIOINFORMATICS)								
I	ntro	duct	on to Programming Languages & Pro C & C++	ogramming Through					
	Day & Date: Thursday, 16-02-2023 Max. Marks: 80 Time: 03:00 PM To 06:00 PM								
Instru	uctio	2	Q. Nos. 1 and 2 are compulsory. Attempt any three questions from Q. No. 3 to Figure to right indicate full marks.	Q. No. 7					
Q.1	A)	Cho 1)	Dise the correct alternatives. C was invented to write an operating system of a) LINUX b) UNI c) Windows d) Mac	х	10				
		2)	Programming language is a goal-orienta) Designb) Devec) Discoverd) Creation	elop					
		3)	Shortcut key for paste dataa) Ctrl+Fb) Ctrl+c) Ctrl+Vd) Ctrl+	+G+T +P					
		4)	, , , , , , , , , , , , , , , , , , , ,	ld Wide Web ld Worker Website					
		5)	, , , , , , , , , , , , , , , , , , , ,	e during the execution of pability stants					
		6)	, , , ,	er. Byte nel Boot					
		7)	Convert (1011) binary to decimal is a) 21 b) 41 c) 11 d) 14						
		8)	is an instance of a class. a) Attribute b) Even c) Object d) Class	nt ssifier					
		9)	C is a level computer language. a) Top b) Mid c) Surface d) Pool	r					
		10)	is the common editor for programminga) Notepadb) MSc) Exceld) Pain	word					

	B)	B) Fill in the blanks.				
		1) URL stands for				
		The is used to terminate a statement.				
		3) C has keywords but number of built in functions.				
		4) In CPP, members of a class are by default.				
		 C language has been designed and written by 				
		 6) is a set of logical procedure steps to solve the problem. 				
Q.2	Ans	swer the following.	16			
	a)	Describe in detail Dynamic programming.	-			
	b)	Explain in detail levels of Programming.				
		Write a short note on C programming.				
	d)	Write structure of c++ and explain its data types.				
	u)	while structure of C++ and explain its data types.				
Q.3	Ans	swer the following.	16			
QIU		Describe in detail Decision control statements in C++.				
	b)	Write brief account on "History of C".				
	D)	while blief account of Thistory of C.				
Q.4	Ans	swer the following.	16			
	a)					
	b)	•				
	~)	Boonbo in dolan o or languago.				
Q.5	Ans	swer the following.	16			
-	a)	Give write note on "fundamental of computer"				
		Write program on templates in C++.				
	~,					
Q.6	Ans	swer the following.	16			
	a)	Write brief account on Operating system.				
	b)	Describe in detail account on Pointers in C.				
	/					
Q.7	Ans	swer the following.	16			
	a)					

b) Write program on array and explain its types.

)
0
0

d) Waikato Environment for Knowledge Academy

			A byte consists ofa) One bitb) Four bitsc) Eight bitsd) Sixteen bit				
		10)	In DBMS row is called a) tuple b) Caption c) Title d) body				
	B)	1) 2)	Oracle manages the storage space in the data files of a databas in units called A is a collection of logical structures of data.	06 Se			
Q.2	a) b)	swer the followings. Describe in detail Oracle. Define 'integrity' also explain its type. Write types of Database Languages with examples. Write structure of PL-SQL and explain its data types.					
Q.3	a)	Write	t he followings. e brief account on Data Model. lain in detail Normalization and its types.	16			
Q.4	a)	 Answer the followings. a) Write brief account on DBMS Applications in Bioinformatics. b) Describe in detail RDBMS. 					
Q.5	a)	Write	t he followings. e brief account on SQL. e and explain Hospital database development.	16			
Q.6	 Answer the followings. a) Write history of DBMS. b) Explain in detail MATLAB image processing and its applications. 						
Q.7	Ansv a) b)	Write	t he followings. e Short note on Data Mining e and Explain Actors on the scene and Workers behind the scene	16 e.			

			IN-00-	
Set No.			Set	Ρ
		(Semester - III) (New) (CBCS)Examination: Oct/Nov (BIOINFORMATICS) omputational Structure Biology and Drug designing		
	& Date: We		y lax. Marks	: 80
Instru	2	I) Q. Nos. 1 and. 2 are compulsory. 2) Attempt any three questions from Q. No. 3 to Q. No. 7 3) Figure to right indicate full marks.		
Q.1	A) Cho 1)	cose the correct alternative. (MCQ) is used for the detection of protein-protein interaction.a) Native PAGEb) Y2Hc) Spectrophotometerd) Coimmunoprecipitation	ion	10
	2)	a) should be the quality of 3D modeled proteins.a) >90%b) >30%c) <90%		
	3)	is not a drug metabolizing enzyme. a) CYP2C8 b) CYP2C19 c) CYPA1 d) Reductase		
	4)	Clinical trials are carried on a) Animals b) Human's c) Birds d) Reptiles		
	5)	Relationships between chemical structure and biological activ quantitative manner can be predicted by a) QSAR b) QSBR c) QSTR d) QSPR	ity in a	
	6)	is not a type of protein secondary structure. a) Alpa helix b) beta sheet c) Loop d) Folds		
	7)	is a 3D protein structure prediction tool. a) RamPage b) Modeller c) Protopred d) 3DPred		
	8)	Protein model quality is checked using server. a) PDBeMotiff b) PDBeNMR c) PDBSum d) PDBefold		
	9)	are text files which contain structure information for si molecular compounds. a) .pdf b) .pdb c) .mol2 d) .SDF	ngle	
	10)	a) Memtool b) Membrane belices prediction tool. b) Membranetool c) TMHMM d) HTool		

	B)	 Fill in the blanks. 1) The AD and BD transcription activator binds to region of DNA. 2) GOR method is used to predict structure. 3) DNase footprinting assay is used to detect interaction. 4) Testing drugs on animals is called trial. 5) RasMol is tool. 6) HEX software is used for 	06
Q.2	Ans ⁻ a) b) c) d)	wer the following. Write a note on position specific scoring matrices. Describe Human Pathway Database. Explain in architectures and topologies of protein and DNA. Explain Metalloproteins with examples.	16
Q.3	Ans a) b)	wer the following. Explain the computer aided drug design. (CADD) Explain the DNA-Drug interaction.	10 06
Q.4	Ans a) b)	wer the following. Explain pharmacokinetics properties. Describe the clinical trials in detail.	10 06
Q.5	Ans a) b)	wer the following. Explain the types of secondary structure in protein. Describe RCSB-PDB database in detail.	10 06
Q.6		wer the following. What is drug absorption? Write a note on mechanisms and factor affecting drug absorption. What is Y2H system? Explain protein-protein interaction detection using Y2H.	10 06
Q.7	Ans a) b)	wer the following. Explain the steps involved in Homology based modeling. Describe combinatorial chemistry with its applications.	10 06

M.Sc. (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2022 (BIOINFORMATICS) Clinical Bioinformatics

Day & Date: Tuesday, 21-02-2023

Time: 03:00 PM To 06:00 PM

Seat

No.

Instructions: 1) Q. Nos.1 and 2 are compulsory.

- 2) Attempt any Three questions from Q.No.3 to Q.No.7.
- 3) Figures to the right indicate full marks.

Q.1 A) Choose the correct alternatives from the options.

- 1) An _____ system that groups related disease entities and conditions for the purpose of reporting statistical information.
 - a) ICD b) IDC c) ISD d) DSI
- 2) Quality _____ (QC) is a process by which entities review the quality of all factors involved in production.
 - a) central b) corporation
 - c) control d) community

3) _____ reaction, a process in which one or more substances, the reactants, are converted to one or more different substances, the products.

- a) Biological b) Physical
- c) Chemical d) Ecological
- is the science & activities relating to the detection, assessment, understanding and prevention of adverse effects.
 - a) AV b) TV
 - c) NV d) PV
- 5) Genome _____ refers to the amount of DNA contained in a haploid genome expressed either in terms of the number of base pairs.

a) same	b)	similarity
---------	----	------------

- c) size d) colour
- Ensembl genome database project is a scientific project at the European _____ Institute, which was launched in 1999 in response to the imminent completion of the Human Genome Project.
 - a) Basics b) Biomedical
 - c) Biology d) Bioinformatics

Max. Marks: 80

10

Set P

- The mouse genome is _____ billion DNA letters long, about 14 percent shorter than the human genome, which is 2.9 billion letters long.
 - a) 1.6 b) 1.8
 - c) 6.8 d) 2.5
- 8) The _____ Path DB Bioinformatics Resource Center provides a portal for accessing genomic-scale datasets associated with the diverse eukaryotic microbes.
 - a) Pu b) Tb
 - c) Kb d) Eu
- A viral <u>detection</u> detection test is done on a sample of tissue that might be infected.
 - a) antibody b) asthma
 - c) allergen d) antigen
- 10) Alzheimer's disease (AD) is a chronic _____ disease that results in the loss of neurons and synapses in the cerebral cortex and certain subcortical structures.
 - a) pvd b) neurodegenerative
 - c) cvd d) cf

Q.1 B) Write True/False.

- 1) R is private and commercial software as it is not licensed under the terms of the GNU General Public License.
- 2) DNA methylation is the process by which a acidic group is added to DNA.
- 3) The main function of pathology informatics is standardized and coded machine consumamble data.
- 4) Pharmacovigilance is also called as drug safety.
- 5) The most prevalent drug-metabolizing enzymes (DME) are the Cytochrome P450 (CYP) enzymes.
- 6) The National Center for Biotechnology Information is maintained by Swiss institute of bioinformatics.

Q.2 Answer the following.

- a) Write a note on types of clinical research?
- b) Give a note on A.thaliana genome sequence project and applications?
- c) What are the symptoms of viral diseases?
- d) How pharmcogenomics necessary for drug designing?

Q.3 Answer the following.

- a) Write in detail of Next generation sequencing platforms? 08
- b) Explain the clinical data management and its available softwares. **08**

06

16

Q.4	Ans a) b)	wer the following. Give a detailed account on Ensembl and Mapviewer database? Give a detailed account on Pathology informatics and tools for analysis of pathology informatics?	08 08
Q.5	Ans a) b)	wer the following. What is circulatory disease and available treatment for circulatory disease? Give a detailed note on metabolomics and its applications.	08 08
Q.6	Ans a) b)	swer the following. Explain the genome assembly and types of genome assembly in detail. What is medical coding and steps of medical coding?	10 06
Q.7	Ans a) b)	wer the following. Explain Host Pathogen interactions and give the details of database for host pathogen interactions. Write a note on Human Genome project and its ELSI in implications on human disease.	10 06

Max. Marks: 80

No. M.Sc. (Semester - IV) (New) (CBCS) Examination: Oct/Nov - 2022 (BIOINFORMATICS)

Seat

Emerging Areas of Bioinformatics

Day & Date: Thursday, 23-02-2023 Time: 03:00 PM To 06:00 PM

Instructions: 1) Q. No. 1 & 2 are compulsory.

- 2) Attempt any three guestions from Q. No. 3 to 7.
- 3) Figures to the right indicate full marks.

Q.1 A) Choose the correct alternatives from the options.

- compounds are delimited by lines consisting of four dollar 1) signs (\$\$\$\$).
 - a) Multiple b) One
 - c) Zero d) Single
- Immunoinformatics is a branch of 2)
 - a) System biology
 - b) Structural biology
 - c) Evolutionary biology
 - d) Inheritance biology

The Encyclopedia of is a free, online collaborative 3) encyclopedia intended to document all of the 1.9 million living species known to science.

a)	Lamp	b)	Light
- \	1.10.	-13	1 1

- c) Life d) Last
- The type of immunity possessed by birth is called _____. 4)
 - a) Adaptive b) Acquired
 - c) Innate d) Primate
- The term _____ was defined in its application to drug discover, for 5) instance, by F.K. Brown in 1998.
 - a) chemoinformatics biodiversity b)
 - c) biology d) computer
- 6) is one of the resources of immunoinformatic.
 - a) NCBI b) DDBJ
 - c) Brenda IMGT d)
- Conservation within the natural habitat is _____ conservation. 7)
 - b) in vivo a) ex situ
 - c) ex vivo d) in situ
- dbSNP is a _____ database from the National Center for 8) Biotechnology Information (NCBI).
 - a) Domain b) Snp
 - c) Carbohydrate d) Chemical



10

Ρ

06

- 9) The size of nanoparticles ranges from _____
 - a) 1-1000cm b) 1-1000mm
 - c) 1-1000um d) 1-1000nm
- 10) Missense- _____ change in the base results in change in amino acid of protein and its malfunction which leads to disease.
 - a) multiple b) haplotype
 - c) phenotype d) single

Q.1 B) Write True/False.

- 1) PubChem is a database of chemical molecules and their activities against biological assays. The system is maintained by EBI.
- 2) dbSNP is database maintained by European molecular biology laboratory.
- 3) Species 2000 is a federation of database organizations across the world that compiles the Catalogue of Life.
- 4) Polyphen is a offline tool for prediction the mutation in SNP analysis.
- 5) Epitome database is used for the prediction of epitopes.
- 6) The size of nanoparticles is measured in micrometers.

a) b)	Explain the SDF file format in detail. Write a note of dbSNP database and submission details.	16
c) d)	Write a note on Molecular data types in Molecular phylogenetics. Write a note on importance of immunoinformatics.	
a)	Write Pubchem and Drug bank chemical database in detail.	16
Ans a)	wer the following. What is polymorphism and how to take clinical decision for personalized medicine?	16
b)	Define IMGT. Add a note on its databases.	
Ans a) b)	wer the following. Write a detail account on TDWG and its standards and protocols. Add a note on methods of synthesis of nanoparticles.	16
Ans		
a)	Give a detail account on Chemoinformatics and application of chemoinformatics in different field?	10
b)	Write a detailed note on applications of immunoinformatics.	06
Ans	•	
a)	Give a detailed account Botanical Library BRIT and BGBM database with its standards?	10
	 a) b) c) d) Ans a) b) Ans a) b) Ans a) b) Ans a) b) Ans b) Ans b) Ans b) Ans b) 	 b) Write a note of dbSNP database and submission details. c) Write a note on Molecular data types in Molecular phylogenetics. d) Write a note on importance of immunoinformatics. Answer the following. a) Write Pubchem and Drug bank chemical database in detail. b) Give a detail account Substructure based searching. Answer the following. a) What is polymorphism and how to take clinical decision for personalized medicine? b) Define IMGT. Add a note on its databases. Answer the following. a) Write a detail account on TDWG and its standards and protocols. b) Add a note on methods of synthesis of nanoparticles. Answer the following. a) Give a detail account on Chemoinformatics and application of chemoinformatics in different field? b) Write a detailed note on applications of immunoinformatics.

b) Explain the Genetic testing with applications in personalized medicine? 06

		SLR-GC-	-19
Seat No.		Set	Ρ
Μ.	Sc. (Semester - IV) (Old) (CBCS) Examination: Oct/Nov-2022 (BIOINFORMATICS) Biological Simulation and Modeling	
Time: 03	:00 Pl ons:	Monday, 20-02-2023 M To 06:00 PM 1) Q. Nos. 1 & 2 are compulsory. 2) Attempt any three questions from Q. No. 3 to 7. 3) Figures to right indicate full marks.	: 80
Q.1 A)	Cho 1)	oose the correct alternatives from the options.1Python was developed bya) Stave Jobsb) Dennis Ritchic) Guido van Rossumd) Larry Wall	10
	2)	is a named piece of memory that can store a value. a) Constant b) Array c) Static d) Variable	
	3)	 IDLE stands for a) Integrated Development Environment b) Invented Development Environment c) Independent Development Environment d) Inverse Development Environment 	
	4)	is a sequence of text characters in a program. a) Code b) String c) Program d) Data types	
	5)	Python was released publicly in a) 1941 b) 1971 c) 1981 d) 1991	
	6)	An event is arranged as function of a) energy b) Time c) temperature d) Pressure	
	7)	Simulations are performed because the events are not a) calculated b) visualized c) estimated d) tabulated	
	8)	Molecular simulations represent of biomolecules. a) shape b) mass c) interaction d) size	

		9)	a)	demic model is growth parameters	b) ba	cteria	_ in s	imulati	ons.		
		10)	a)	ometry optimiza pressure temperature	b)	for	ce	weri	ng	<u> </u>		
Q.1	В)	1) 2) 3) 4)	Pytl A _ stat URI Sim The	e blanks. hon supportsstateme tements multiple L stands for nulation is mimic e energy of stab lecular dynamic	nt allows e times. cking of _ le molect	us to e ule is a	execute				roup of	06
Q.2	a) b)	Expla Write Add	ain a e a n a no	ollowing. a detail account note on Python ote on application note on energy f	Indentations of sim	on. ulatior	ıs.	-	nics.			16
Q.3	a)	Expla	ain p	ollowing. bython data type itures of python			res in c	deta	il.			16
Q.4		List o	out p	ollowing. Bython tools with a detail account	•••			ntec	I.			16
Q.5	a)	Expla	ain p	ollowing. bython list and i mulation. Add a				les.				16
Q.6	Ans a) b)	Expla	ain b	ollowing. biological mode lote on energy i				tions	6.			16
Q.7	Ans a) b)	Write	e a n	ollowing. ote on conform ote on molecula								16

Seat	
No.	

Set P

M.Sc. (Semester - IV) (Old) (CBCS) Examination: Oct/Nov-2022 (BIOINFORMATICS) Clinical Bioinformatics

Day & Date: Tuesday, 21-02-2023

Time: 03:00 PM To 06:00 PM

Max. Marks: 80

Instructions: 1) Q. Nos.1 and 2 are compulsory.

- 2) Attempt any Three questions from Q.No.3 to Q.No.7.
- 3) Figures to the right indicate full marks.

Q.1 A) Choose the correct alternatives from the options.

10

- An _____ system that groups related disease entities and conditions for the purpose of reporting statistical information.
 a) ICD b) IDC
 - c) ISD d) DSI
- 2) Quality _____ (QC) is a process by which entities review the quality of all factors involved in production.
 - a) central b) corporation
 - c) control d) community

3) _____ reaction, a process in which one or more substances, the reactants, are converted to one or more different substances, the products.

- a) Biological b) Physical
- c) Chemical d) Ecological
- is the science & activities relating to the detection, assessment, understanding and prevention of adverse effects.
 - a) AV b) TV
 - c) NV d) PV
- 5) Genome _____ refers to the amount of DNA contained in a haploid genome expressed either in terms of the number of base pairs.
 - a) same b) similarity
 - c) size d) colour
- Ensembl genome database project is a scientific project at the European _____ Institute, which was launched in 1999 in response to the imminent completion of the Human Genome Project.
 - a) Basics b) Biomedical
 - c) Biology d) Bioinformatics

- The mouse genome is _____ billion DNA letters long, about 14 percent shorter than the human genome, which is 2.9 billion letters long.
 - a) 1.6 b) 1.8
 - c) 6.8 d) 2.5
- 8) The _____ Path DB Bioinformatics Resource Center provides a portal for accessing genomic-scale datasets associated with the diverse eukaryotic microbes.
 - a) Pu b) Tb
 - c) Kb d) Eu
- A viral <u>detection</u> detection test is done on a sample of tissue that might be infected.
 - a) antibody b) asthma
 - c) allergen d) antigen
- 10) Alzheimer's disease (AD) is a chronic _____ disease that results in the loss of neurons and synapses in the cerebral cortex and certain subcortical structures.
 - a) pvd b) neurodegenerative
 - c) cvd d) cf

Q.1 B) Write True/False.

- 1) R is private and commercial software as it is not licensed under the terms of the GNU General Public License.
- 2) DNA methylation is the process by which a acidic group is added to DNA.
- 3) The main function of pathology informatics is standardized and coded machine consumamble data.
- 4) Pharmacovigilance is also called as drug safety.
- 5) The most prevalent drug-metabolizing enzymes (DME) are the Cytochrome P450 (CYP) enzymes.
- 6) The National Center for Biotechnology Information is maintained by Swiss institute of bioinformatics.

Q.2 Answer the following.

- a) Write a note on types of clinical research?
- b) Give a note on A.thaliana genome sequence project and applications?
- c) What are the symptoms of viral diseases?
- d) How pharmcogenomics necessary for drug designing?

Q.3 Answer the following.

- a) Write in detail of Next generation sequencing platforms? 08
- b) Explain the clinical data management and its available softwares. **08**

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Q.4	Ans	swer the following.	
	a) b)	Give a detailed account on Ensembl and Mapviewer database? Give a detailed account on Pathology informatics and tools for analysis of pathology informatics?	08 08
Q.5	Ans	swer the following.	
	a)	What is circulatory disease and available treatment for circulatory disease?	80
	b)	Give a detailed note on metabolomics and its applications.	08
Q.6	Ans	swer the following.	
	a)	Explain the genome assembly and types of genome assembly in detail.	10
	b)	What is medical coding and steps of medical coding?	06
Q.7	Ans	swer the following.	
	a)	Explain Host Pathogen interactions and give the details of database for host pathogen interactions.	10
	b)	Write a note on Human Genome project and its ELSI in implications on human disease.	06

Seat Set Ρ No. M.Sc. (Semester - IV) (Old) (CBCS) Examination: Oct/Nov-2022 (BIOINFORMATICS) **Research Methodology and IPR In Bioinformatics** Day & Date: Wednesday, 22-02-2023 Max. Marks: 80 Time: 03:00 PM To 06:00 PM Instructions: 1) Q. Nos. 1 and 2 are compulsory. 2) Attempt any Three guestions from Q.No.3 to Q.No.7. 3) Figures to the right indicate full marks. Q.1 A) Choose the correct alternatives from the options. 10 The first step in formulating a problem is 1) a) Statement of the problem b) Gathering of Data c) Measurement d) Survey is a quality of Good Researcher. 2) a) Scientific temper b) Age c) Money d) Time part of a research report contains details description of 3) experiment was planned and conducted. a) Results b) Design c) Introduction Method d) When referencing other works you have cited within the text of the 4) report you should _____. a) State the first and last name of the author b) Use the author, date citation method c) Use an asterisk and a footnote d) Insert the complete citation in parenthesis Sampling theory helps us to estimate population. 5) a) Unknown Known b) c) Particular d) Universal 6) is not a method of data collection. a) Questionnaires b) Interviews c) Experiments d) Observations of these is a geographical indication. 7) a) BMW b) Mysore silk d) Play station c) Hogwarts

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- 8) Once a trademark has been federally registered, _____ notice should be used with it.
 - a) ® b) ©
 - c) ™ d) @
- 9) A variety is said to be _____ if its essential characteristic remain unchanged after repeated propagation.
 - a) novel b) distinct
 - c) uniform d) stable
- 10) _____ among the following cannot apply for registration of a plant variety.
 - a) breeder of the variety
 - b) successor of the breeder of variety
 - c) farmer or group of farmers claiming to be breeders of variety
 - d) seller of the variety developed by breeder

Q.1 B) Write True/False.

- 1) Reducing the cost and time is not one of the characteristics of research.
- 2) A good title is one that has the minimum possible amount of words that describe accurately the content of the paper.
- 3) Arithmetic Mean is not part of Measures of central tendency.
- 4) Geographical indications are typically used for pharmaceutical products.
- 5) Technology transfer is a key factor strongly impacting on economic growth both in the short and long term.
- 6) Territorial rights are the idea of exercising control over a geographically bounded area of land.

Q.2 Answer the followings.

- a) Explain the steps in research.
- b) Write *a* note on advantages and limitations secondary data.
- c) Explain the detailed guidelines for writing an introduction in the manuscript.
- d) Explain the mission and goals of WIPO.

Q.3 Answer the followings.

- a) Explain in detail the characteristics of the research.
- b) Write a detailed description of research design.

Q.4 Answer the followings.

- a) What is data? Describe in detail the primary data collection methods.
- **b)** What is the degrees of freedom? Explain Chi-square test with an example.

Q.5	An: a) b)	swer the following. Write a note on ISSN and ISBN. Explain the guidelines for writing the materials and methods section of thesis.	16
Q.6	An: a) b)	swer the following. Write a note on patent search databases. Discuss in detail the patent case study with respect to Neem and Turmeric.	16
Q.7	An a) b)	swer the following. Write a note on technology transfer process. Explain the requirements of material for DUS testing.	16