University of Mumbai

Examination 2020 under cluster 4 (PCE)

Program: BE Biotechnology
Curriculum Scheme: Rev2012
Examination: Third Year Semester VI
Course Code: BTC601 and Course Name: Bioinformatics-II

Time: 1 hour Max. Marks: 50

Note to the students: - All the Questions are compulsory and carry equal marks.

Q1.	Molecular docking is one of the most frequently used methods in structure-based drug design, due to its ability to
Option A:	No copyright infringement
Option B:	Can store data
Option C:	Predict the binding-conformation of small molecule ligands to the appropriate target binding site.
Option D:	Be Economical
Q2.	Once the essential groups of a complex drug have been identified by SAR, it is often possible to discard the non-essential parts of the structure without
Option A:	Increasing activity
Option B:	Losing activity
Option C:	Enlarging activity
Option D:	Multiplying activity
Q3.	What are useful when comparing different conformations of the same molecule but no meaning as absolute quantities
Option A:	Molecular Mechanics
Option B:	Semi Empirical Mechanics
Option C:	Quantum Mechanics
Option D:	Ab initio Mechanics
Q4.	It is a characteristic of a product or system, whose interfaces are completely understood, to work with other products or systems, at present or in the future, in either implementation or access, without any restrictions.
Option A:	Docking
Option B:	Drug Designing

Option C:	Interoperability
Option D:	Drug Discovery
Q5.	The energy minimization process is usually carried out by a
Option A:	Molecular program
Option B:	Semi Empirical program
Option C:	Quantum program
Option D:	Ab initio program
Q6.	Functional groups, such as alkenes and aromatic rings, can interact with binding sites by means of
Option A:	Hydrophobic Interactions
Option B:	van der Waals interactions
Option C:	Hydrophilic interactions
Option D:	Disulphide interactions
Q7.	When is the process of energy minimization carried out?
Option A:	Only of needed
Option B:	During the building of the structure
Option C:	After the structure is built
Option D:	Before building the structure
Q8.	What is UMLS?
Option A:	Unified Medical Language System
Option B:	United Mix Language System
Option C:	Undefined Medical Language System
Option D:	Under Moderated Language System
Q9.	Dealing with receptor flexibility in docking methodologies is still a problematic issue. Why?

Option A:	Large number of degrees of freedom
Option B:	Unknown structure
Option C:	Tedious design
Option D:	It is not well studies area
Q10.	Which of the following is not an essential point in Mechanics of Docking?
Option A:	Search Algorithm
Option B:	Ligand Flexibility
Option C:	Receptor flexibility
Option D:	QSAR
Q11.	A bulkier substituent may prevent the drug from binding to multiple different receptors and so
Option A:	Increase side effect
Option B:	Decrease side effect
Option C:	Modify side effect
Option D:	Enhance side effect
Q12.	Which type of energy surface of a molecule is calculated by Computational methods
Option A:	Kinetic
Option B:	Semi Empirical
Option C:	Potential
Option D:	Non Empirical
Q13.	It is a strategy which is commonly used on the complex lead compounds arising from natural sources
Option A:	Elongation
Option B:	Magnification
Option C:	Simplification
Option D:	Addition

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Q14.	A group having the same valency is called as
Option A:	Isocentric
Option B:	Isotherm
Option C:	Isotope
Option D:	Isostere
Q15.	Quantum mechanics uses which physics aspect to calculate the properties of a molecule by considering the interactions between the electrons and nuclei of the molecule?
Option A:	Combinatorial physics
Option B:	Linear Physics
Option C:	Classical physics
Option D:	Quantum physics
Q16.	In which of the following condition can Hidden Markov Model be employed?
Option A:	To understand the docking between ligand and receptor
Option B:	To understand the structure of a molecule
Option C:	To find links between various genetic sequences
Option D:	To analyse images
Q17.	Once a molecule has been docked successfully, fit optimization is carried out. This is essentially the same as
Option A:	Energy Increment
Option B:	Energy Validation
Option C:	Energy Calculation
Option D:	Energy Minimization
Q18.	Molecular mechanics is useful for the following operations or calculations except
Option A:	Energy minimization

Option B:	Identifying stable conformations
Option C:	Energy calculations for specific conformations
Option D:	Dipole moments
Q19.	The Concave-Convex Surface mapped during docking is called as
Option A:	Heidelberg Surface
Option B:	Connolly Surface
Option C:	Ramachandran Surface
Option D:	Clique Surface
Q20.	The parameter learning task in Hidden Markov Models is to find
Option A:	To find the perfect Docking structure
Option B:	The best set of state transition and emission probabilities
Option C:	Search closest structure
Option D:	Active Site
Q21.	If two or more systems use a common data formats and communication protocols and are capable of communicating with each other, they exhibit
Option A:	Non-Complete Interoperability
Option B:	Complete Interoperability
Option C:	Non-Syntactic Interoperability
Option D:	Syntactic Interoperability
Q22.	What is CORBA?
Option A:	Common Object Request Broker Architecture
Option B:	Constant Object Requirement Architecture
Option C:	Curated Object Request Broker Architecture
Option D:	Collateral Object Requirement Architecture

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Q23.	It is the study of computer algorithms that improve automatically through experience
Option A:	Machine Creation
Option B:	Machine Understanding
Option C:	Machine Optimization
Option D:	Machine Learning
Q24.	If the lead compound has useful biological activity, why bother making analogues?
Option A:	Just to make various drugs available
Option B:	For the sake of research
Option C:	Very few lead compounds are ideal
Option D:	To utilize research grant
Q25.	Which algorithm is used for solving underlying logic/reasoning
Option A:	Hidden Markov Model
Option B:	Search Algorithm
Option C:	Drug Docking Algorithm
Option D:	Energy Calculation Algorithm

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	C
Q2.	B
Q3.	A
Q4	C
Q5	A
Q6	B
Q7	C
Q8.	A
Q9.	A
Q10.	D
Q11.	B
Q12.	C
Q13.	C
Q14.	D
Q15.	D
Q16.	C

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Q17.	D
Q18.	D
Q19.	B
Q20.	B
Q21.	D
Q22.	A
Q23.	D
Q24.	C
Q25.	A