Name: **Enrolme** **nt No:**			
	End Semester Examination **December 2022** **Course: Drug Discovery & Development** **Semester: III** **Program: BSc-MSc Integrated (CR)** **Time: 03 hrs.** **Course Code: HSCR2017** **Max. Marks: 100**		
	SECTION A **1. Each Question will carry 1.5 Marks** **2. Instruction: Complete the statement / Select the correct answer(s)**		
S. No.	**Question**	**(20 X 1.5) = 30**	**CO**
Q 1	**Well-conserved regions in multiple sequence alignments:** a) reflect areas of structural importance. b) reflect areas of functional importance. c)reflect areas of both functional and structural importance. d) reflect areas likely to be of functional and/or structural importance.	**1.5**	**CO 1**
Q2	**Which of the following software is used for Phylogenetic analysis?** a) LUDI b) MEGA c) CHEM-3D d) CoMFA	**1.5**	**CO1**
Q3	**Procheck tool is use for _____.** a) Alignment b) Protein Validation c) Simulation d) None of these	**1.5**	**CO2**
Q4	**Which of the following statements best describes a lead compound?** a) A compound that contains the element lead. b) A compound from the research laboratory that is chosen to go forward for preclinical and clinical trials c) A molecule that shows some activity or property of interest and serves as the starting point for the development of a drug. d) The first compound of a structural class of compounds to reach the market.	**1.5**	**CO1**
Q5	**Which type of data base EBI is?** a) Protein db b) Pathway db c) Nucleotide db d) Specialized db	**1.5**	**CO3**

Q6	**Which of the following approach is considered under the 'Ligand based drug designing'?** a) Molecular docking b) Pharmacophore modeling c) QSAR Modeling d) b and c both	**1.5**	**CO1**
Q7	**Which of these is gene prediction algorithm?** a) UPGMA b) Hidden Markov Model c) Maximum parsimony d) None of these	**1.5**	**CO4**
Q8	**Identify the kind of interactions that are typically involved in binding a drug to the binding site of a protein.** a) van der Waals interactions b) ionic bonds c) hydrogen bonds d) a combination of all of the above	**1.5**	**CO2**
Q9	**What is meant by ADME in pharmacokinetics?** a) Affinity, dosage, marketing, efficacy b) Absorption, distribution, metabolism, excretion c) Agonism, dependence, mobility, efficiency d) Antagonism, deficiency, mean, efflux	**1.5**	**CO3**
Q10	**Which of the following statements best describes an induced fit?** a) the process by which a binding site alters shape such that it is ready to accept a drug b) the process by which a drug adopts the correct binding conformation before entering a binding site c) the process by which binding of a drug to a binding site alters the shape of the binding site d) the process by which a binding site alters the shape of the drug into the binding conformation before binding	**1.5**	**CO2**
Q11	**There are several sources and methods of discovering new compounds. Which of the following is most likely to lead to the discovery of a complex structure quite unlike any other previously discovered?** a) combinatorial chemistry b) database mining c) screening plant extracts d) me too drugs	**1.5**	**CO2**
Q12	**The software which is not used for molecular docking?** a) Auto Dock b) Gold c) Glide d) Chemdraw	**1.5**	**CO2**
Q13	**What is the term used for drugs that are similar in structure to a known drug and which are used for the same purpose?** a) 'copycat' drugs b) 'me-too' drugs c) 'derivative' drugs d) 'analogue' drugs	**1.5**	**CO4**

Q14	**What is the term used for the automated in vitro testing of large numbers of compounds using genetically modified cells?** a) robotic testing b) high throughput screening c) multi-screening d) nanotechnology	**1.5**	**CO1**
Q15	**Which of the following is an example of Homology and similarity tool?** a) BLAST b) RasMol c) EMBOSS d) PROSPECT	**1.5**	**CO2**
Q16	**Which of the following needs to be established before the search for a lead compound takes place?** a) the pharmacophore b) Structure-activity relationships c) a bioassay d) patents	**1.5**	**CO4**
Q17	**Which statement is false when comparing a drug having a cyclic scaffold with one having a linear scaffold?** a) There is more chance of a drug with a rigid scaffold finding an active conformation for a particular binding site b) A drug with a cyclic scaffold is likely to have stronger interactions with a target binding site. c) A drug with a cyclic scaffold has fewer conformations d) There is less chance of a drug with a cyclic scaffold binding to a target binding site.	**1.5**	**CO2**
Q18	**A certain compound X occupied a site of an enzyme exactly opposite to that of the active site. This immediately resulted in the change of shape of the active site. X is called a _____** a) competitive inhibitor b) non-competitive inhibitor c) competitive messenger d) receptor	**1.5**	**CO3**
Q19	**If the bond between the enzyme and inhibiting drug is very strong, which of the following takes place?** a) The active site slowly regains its original shape b) The enzyme develops a new active site c) The enzyme is blocked temporarily d) The body synthesizes a new enzyme	**1.5**	**CO2**
Q20	**Which of the following sets contains all aromatic residues?** a) G, D, N, E b) I, V, L, M c) R, K, H d) F, Y, W	**1.5**	**CO3**
	SECTION B **Each question will carry 5 marks** **Write short / brief notes (any four)**		
Q1	a) What is Pharmacophore modelling? b) Describe the advantages and disadvantages of pharmacophore modeling.	**2+3**	**CO2**
Q2	a) What is the method of combinatorial chemistry in lead	**3+2**	**CO4**

	identification? b) Write down the limitations of this method.		
Q3	a) What is 3D-QSAR? b) Explain the importance of 2D and 3D QSAR for lead optimization.	**2+3**	**CO2**
Q4	Write a short note on structure based drug design.	**5**	**CO4**
Q5	What is molecular docking? Draw a flow chart to explain the method of docking study.	**1+4**	**CO1**
	SECTION C **Each question contains 15 marks** **Write short / brief notes**		
Q1	a) What is the role of homology modeling in drug discovery? b) Describe the method of homology modeling by giving an example. c)Illustrate the advantage and disadvantages of homology modeling.	**3+6+6**	**CO1**
Q2	a) What do you mean by rational drug design? b) Ranitidine (Zantac) is a medicine that reduces indigestion, heartburn, and acid reflux. Describe the steps which were utilized to discover this drug via rational drug design approach? c) Briefly discuss the types of rational drug design methods used for developing new drug like molecules.	**3+7+5**	**CO4**
	SECTION D **Each question contains 10 marks** **Write short / brief notes**		
Q1	a) What are the tools used for target identification? b) Write down the role of genomics in target identification. c) What is the role of si RNA in target validation?	**1+5+4**	**CO2**
Q2	a) What is microarray? b) What is the function of zinc finger proteins (ZFPs)? c) How affinity chromatography can be used as a classical method for target identification? d) Why shotgun sequencing method is more useful than sanger sequencing during target identification?	**2+2.5+3.5+2**	**CO3**