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Q.P. Code: 96058

University of Mumbai
Semester Examination- FH2022 (Academic Year 2021-2022)
M. Pharm Sem II (Choice based R2019)
Subject: **Principles of Drug Discovery**

Duration : 3 Hours

Marks : 80

Q. 1 Attempt all multiple-choice questions (MCQ) **20M**

Sr No	Questions		Options
1	Target validation is simply defined as	a	Process of checking dissolution profile of drug
		b	Confirmation of target structure
		c	Having gathered adequate scientific evidence for the target's disease association and its therapeutic potential.
		d	Confirmation of target characteristics
2	Unlike the genome (the complete set of genes within each organism), the composition of the proteome is in a _____ over time and throughout the organism	a	constant state
		b	constantly changing state
		c	changing after 6 months
		d	changing only twice
3	Proteomics refers to the study of _____.	a	Set of proteins in a specific region of the cell
		b	Biomolecules
		c	Set of proteins
		d	The entire set of expressed proteins in the cell
4	siRNA is a double-stranded RNA molecule that is _____	a	Non-coding
		b	Coding
		c	Double coding
		d	Excess coding
5	Antisense technology is a drug discovery platform based on short chemically modified oligonucleotides that bind to their _____ targets by Watson–Crick base pairing	a	DNA
		b	RNA
		c	Amino acid
		d	Protein

6	Solid phase synthesis is frequently used in combinatorial chemistry. What is meant by solid phase synthesis?	a	Reactions are carried out without solvent.
		b	Reagents and reactants are attached to a solid phase support.
		c	Reagents are used in the solid phase.
		d	Molecules are constructed on a solid phase support.
7	What is true about Random Screening:	a	Intellectuation
		b	Desirable to minimize the drug like
		c	Compound tested in bioassay
		d	Most efficient technique for lead screening
8	Identify the kind of interactions that are not typically involved in binding a drug to the binding site of a protein	a	Predominantly van der Waals interaction
		b	Predominantly ionic bonds
		c	Predominantly hydrogen bonds
		d	Predominantly Covalent bonds
9	In structure-based drug design you can not design a new drug until	a	You have known protein/target crystal structure
		b	You have tested a similar drug on animals
		c	You have tested a similar drug on people
		d	You have received clearance to do so from WHO
10	Which is the correct sequence/steps involved in drug design? 1. Clinical trials 2. Hits identification 3. Protein structure determination 4. Lead Identification/optimization 5. Target Identification	a	3-2-1-5-4
		b	5-3-2-4-1
		c	1-2-3-5-4
		d	3-1-2-5-4
11	Select the incorrect statement	a	QSAR equations are used to predict the biological activity of compound
		b	QSAR development needs knowledge of the structure of biological target molecule
		c	QSAR equations are based on derivation of a mathematical relationship between two variables

		d	QSAR equations use various statistical techniques for their development
12	The QSAR approach attempts to find a	a	Qualitative correlation between structural properties and biological effect
		b	Quantitative correlation between structural properties and biological effect
		c	Qualitative correlation between two structural properties
		d	Quantitative correlation between two structural properties
13	A common workflow of de novo drug designing is given. Predict the correct sequence of steps 1. fitting molecular fragments 2. identification of interaction sites 3. fragment bridging 4. analysis of binding site	a	1-2-3-4
		b	4-3-2-1
		c	1-2-4-3
		d	4-2-1-3
14	Two commonly used strategies in de novo drug design are	a	growing; linking
		b	replacement; inversion
		c	dissection; cutting
		d	flexing; sorting
15	Docking process attempts to simulate the	a	site mutation of target proteins
		b	gene knock-out studies
		c	Binding of a ligand molecule to its biomolecular target
		d	Pharmacokinetics of drug molecules
16	Which of the following will be an example of changing the physical form of the drug to get a prodrug	a	Ethyl mercaptan to phthalate esters
		b	Ethyl mercaptan to 1,3-diesters
		c	Trichloroethanol to paracetamol
		d	PABA to Formate
17	_____ is an example of bioprecursor prodrug	a	Cyclophosphamide
		b	Pivampicillin
		c	Progabide
		d	Becampicillin
18	Which of the following is a mutual Prodrug	a	Mannitol
		b	Estramustine

		c	Oxytocin
		d	Paracetamol
19	How to prevent hepatic first-pass metabolism for corticosteroids?	a	Use Topically
		b	Providing orally
		c	Form esters and ether products
		d	By enhancing lipophilicity
20	Which is the earliest discovered prodrug?	a	Prontosil
		b	Sulphanilamide
		c	Aspirin
		d	Salicylic acid

Q 2. Attempt any One question **12M**

1. Discuss advantages and applications of High Throughput Screening. Elaborate different types of bioassays used in High Throughput Screening.
2. Write a short note on in-silico lead discovery. Give advantages and disadvantages of random screening ang targeted screening.

Q 3. Attempt any four questions **48M**

1. Discuss in detail roles of genomics and proteomics in target identification.
2. Give a detailed account on De Novo drug design.
3. a. Write about the advantages and disadvantages of prodrug design.
   b. Describe the practical considerations of prodrug design
4. Elaborate on computational prediction of protein structure.
5. Describe various lead identification methods in drug design?
