JHARKHAND Rai University RANCHI ACCREDITED BY NAAC

End Semester/Reappear (Semester IV) Examination July 2022

Programme: B. Pharm **Full Marks: 75**
Subject: Medicinal Chemistry – I **Time: 3 Hrs.**
Subject Code: BP402T
Enrollment No: _____

Section I

1. Objective type questions. Answer all questions. **20 x 1 = 20**

i. Which of the following statements best describes pharmacodynamics?
   a. The study of how drugs reach their target in the body and how the levels of a drug in the blood are affected by absorption, distribution, metabolism and excretion.
   b. The study of how drugs can be designed using molecular modelling based on a drug's pharmacophore.
   c. The study of how a drug interacts with its target binding site at the molecular level.
   d. The study of which functional groups are important in binding a drug to its target binding site and the identification of a pharmacophore.

ii. In QSAR, study of medicinal chemistry Q stands for
   a. Qualitative b. Quantitative c. Both d. Quantum

iii. pKa is a parameter which indicates the
   a. Strength of drug as acid base reaction in water
   b. Aqueous phase in phosphate buffer
   c. Hydrophilic and lipophilic character d. All of the above

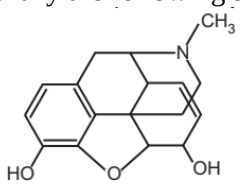
iv. Bioisosteres are similar in their
   a. Physical character c. Chemical character
   b. Both character a & b d. Biochemical character

v. Addition of non-polar group _____ partition co-efficient
   a. Improves b. Reduces c. No effect on d. None

vi. What does the hydrolysis of Aspirin yield us with?
   a. Salicylic acid only c. Salicylic acid and CH3COOH
   b. CH3COOH d. Succinic acid

vii. What is the site of first-pass metabolism before molecules reach systemic circulation?
   a. Kidney b. Throat c. Liver d. Heart

viii. Identify the following structure

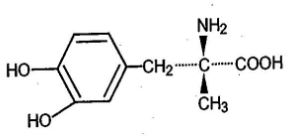


   a. Codeine b. Papaverine c. Morphine d. Morpholine

ix. NDA in drug discovery is
   a. New Drug approval c. New Drug Application
   b. Non-disclosure agreement d. None of the above

x. Prefix -lol is used to denote
   a. alpha-blockers. b. alpha-agonist. c. Beta-blockers. d. Beta-agonist

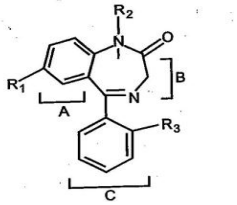
xi. Identify the structure



   a. Phenylephrine b. Methyldopa c. Carbidopa d. Salbutmol

xii. Heterocyclic ring INDOLE is present in
   a. Diclofenac b. Flurbiprofen c. Sulindac d. Indomethacin

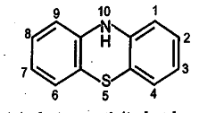
xiii. In the following structure



a. Substitution in ring A at R1 with -Cl will increase activity
b. Substitution in ring A at R1 with -Cl will decrease activity
c. Substitution in ring A at R1 with -Cl will be having no effect activity
d. None of the above

xiv. 5-ethyl-5-phenyl-barbituric acid is also known as
a. Barbital b. Amobarbital c. Phenobarbitald. Butobarbital

xv. For Phenothiazines



Which of the statements is true?
a. Substitution at C-2 and N-10 is must for the activity
b. Only substitution at C-2 is must for activity
c. Only substitution at N-10 is must for activity d. None of the above

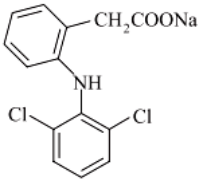
xvi. Clonidine is
a. Alpha one selective agonist c. Alpha two selective agonist
b. Alpha one selective antagonist d. Alpha two selective antagonist

xvii. Codeine differs in structure from morphine by
a. N-methyl group c. Acetyl group at C1 and C6
b. –OCH3 group d. –OC2H5 group

xviii. The only analgesic acting centrally is _____.
a. Aspirin b. Tramadol c. Ibuprofen d. Mefenamic acid

xix. Select the drug which exhibits dual alpha- and beta-adrenergic receptor agonists activity.
a. Terbutaline b. Clonidine c. Metaproterenol d. Dobutamine

xx. Identify the following structure



a. Aceclofenac b. Ibuprofen c. Paracetamol d. Diclofenac

Section II

2. Short Answer type questions. Answer any five. 5 x 7 = 35

a. Explain the role of hydrogen bonding and partition coefficient in drug action.
b. Define drug metabolism. Discuss factors that affect drug metabolism.
c. Discuss the Phase-1 drug metabolism.
d. Explain SAR of beta blockers and synthesis of Propranolol.
e. Outline the synthetic steps of Salbutamol?
f. Explain the steps involved in biosynthesis and catabolism of acetylcholine.
g. Discuss the SAR of Phenothiazeines and explain synthetic steps of Phenytoin.

Section III

Long Answer type questions. Answer any two. 2 x 10 = 20

3. Explain in detail the biosynthesis and catabolism of catecholamine.
4. Discuss the effects of various substituents on activity of barbiturates and benzodiazepines? Explain the synthesis steps of Diazepam.
5. Define general anesthesia and Classify on the basis of route of administration. Explain the synthetic steps of Methohexital sodium.

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