

SCHOOL OF CHEMICAL AND LIFE SCIENCES
M.Sc. CHEMISTRY, SEMESTER-III EXAMINATION-2020
PAPER TITLE: MEDICINAL CHEMISTRY
PAPER CODE: MCHDCE-304

- Please write your roll number at the top of the Answer sheet.
- Attempt all the questions
- It should be noted that 60min extra time will be provided for uploading the answer sheet in pdf format. Please mention the total number of sheets used on the first sheet and sequence of the answer sheet should be clearly mentioned at the top of every sheet used.

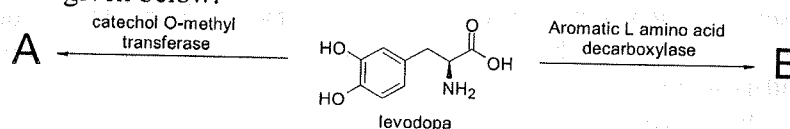
Duration: 3Hrs

Maximum Marks =75

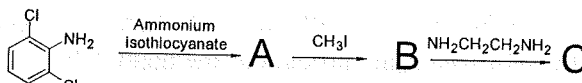
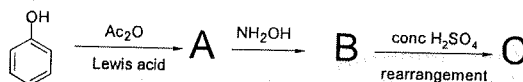
Q1. Answer ANY TEN of the following in brief:

10 x 1.5 = 15

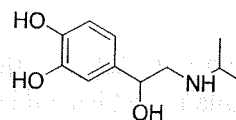
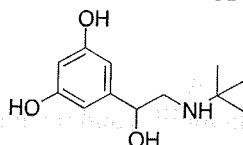
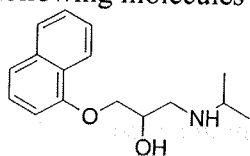
- Differentiate between Drug and Medicine.
- Differentiate between Drug and Prodrug.
- Complete the reaction given below:



- What is the information suggested by the negative value of reaction constant in Hammett plot for a particular reaction?
- Describe briefly (any two)
 - IC₅₀
 - LD₅₀
 - Distribution coefficient
- Complete the reaction below:



- Why penicillin is not considered as sulfa drug?
- Define agonist and antagonist.
- Pictorially represent the SAR of Local Anesthesia
- Draw the structure of quinine and highlight HBA, HBD and hydrophobic groups.
- Mention the pharmacological role of the drugs given below:
 - Cocaine
 - aspirin
 - Isoniazid
 - Nitrous Oxide
- Which of the following drugs are Bactericidal and Bacteriostatic?
 - Sulphapyridine
 - Penicillin
 - tetracycline
 - pyrazinamide
- Which of the following molecules could mimic the action of adrenaline?



- Calculate the percentage ionization and partition coefficient of procaine at pH = 7.4. partition coefficient of unionized procaine = 50 and pK_a = 9.0.
- Explain the factors which affects the pK_a value of a base.

Q2. Answer ANY THREE of the following

3 x 5 = 15

- Differentiate structure based and Ligand based drug design.
- Explain Lipinski Rule of five and its modern extensions.
- Explain Ramachandran Plot.
- differentiate between a-helix and b-sheet structures.

P.T.O

- COC(=O)c1ccccc1 $\xrightarrow{k_H = 2 \times 10^{-4}/\text{Ms}}$ [O-]C(=O)c1ccccc1 $\sigma_p(\text{Br}) = 0.23$
COC(=O)c1ccc(Br)cc1 $\xrightarrow{k_{\text{Br}} = ?}$ [O-]C(=O)c1cc(Br)ccc1 $\sigma_m(\text{Br}) = 0.37$
 $\rho = 2.38$

$$3 \times 5 = 15$$

-

$$3 \times 5 = 15$$

-



$$3 \times 5 = 15$$

- K-----