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Department of Chemistry
School of Chemical & Life Sciences
M.Sc. Chemistry/Semester-III Examination-2023
Paper Title: Medicinal Chemistry
Paper Code: MCHCCO-304

Time 3 hours

Maximum Marks 75

Note: This paper has 3 sections A, B, and C, Attempt all the three sections

Section A: Answer *all* the questions; **Section B:** Answer *any 2* out of 4; **Section C:** Answer *all* the questions, each question has an *internal choice*

Abbreviations Used

CLO- Course Outcome, PLO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

Section A

Very Short Type Questions (attempt all)

(10x2=20 Marks)

Q. No	Question	BTL	CLO	PLO
A 1.	What is the aim and purpose of drug metabolism?	2/3	1/3	1/2
A 2.	Write the importance of the Partition Coefficient in Drug action.	3/4	3/4	2
A 3.	Write the structure and uses of Sulphanilamide and Streptomycin.	1	2	3/4
A 4.	Write any two drug structures and uses of beta-blockers	1/3	2	2
A 5.	What are sedatives and hypnotics agent?	1/2	2-4	2
A 6.	Explain prodrugs with examples.	1/3	3-5	3/4
A 7.	What is a soft drug? Give example.	1/2	2/3	4
A 8.	Write characteristics of an ideal general anesthetic.	2/3	3/4	4
A 9.	Define drug resistance. Give any one example for drug resistance in malaria	2/3	3/4	5
A 10.	What is Phase-I Biotransformation? Explain the oxidation reaction with an example.	2/3	3/4	5

Section B

Long Type questions (Attempt any two out four)

(2x10=20) Marks

Q. No	Question	BTL	CLO	PLO
B 1.	What are penicillins? Classify penicillins according to their spectrum of antimicrobial activity. Describe general chemistry of penicillins.	3/4	2-5	3-4
B 2.	Discuss in detail the relation between chemical structure and biological activity (SAR), giving suitable examples.	4/5	3-4	4-7
B 3.	Describe all stages of drug discovery. Why drug discovery is a long and costly business, explain?	4/5	1-2	4-7
B 4.	What is drug metabolism? Discuss the significance of drug metabolism in medicinal chemistry.	3/5	1-2	5-6

SECTION C

Attempt all questions, each question has an Internal choice

(7 x 5 = 35) Marks

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| C 1. What are anti-malarial drugs? How are these classified? Give suitable examples in each category | 4/5 | 2-4 | 5-7 |
| OR | | | |
| Describe chemotherapy of malaria | 4/5 | 1-3 | 2-4 |
| C 2. What are sulphonamides? Explain the chemistry of Sulphonamides. | 4/5 | 2-5 | 2-4 |
| OR | | | |
| Explain various approaches to drug design. | 4/5 | 1-3 | 2-4 |
| C 3. What are non-steroidal anti-inflammatory drugs? Discuss the synthesis and mode of action of Aspirin and Ibuprofen. | 2/3 | 1-4 | 4-5 |
| OR | | | |
| What are antifungal agents? Discuss the synthesis of Griseofulvin. | 2/3 | 2-3 | 4-5 |
| C 4. In relation to QSAR study discuss the various parameter like electronic, hydrophobic, and steric parameters. | 4/5 | 1-6 | 5-7 |
| OR | | | |
| Explain the relationship between a chemical structure and biological activity. | 4/5 | 1-6 | 5-7 |
| C 5. Explain the synthesis and uses of the following drugs: | 4/5 | 3-4 | 3-4 |
| i) Ethambutol | | | (ii) Albendazole |
| OR | | | |
| iii) Ketoconazole | | | (ii) Rifampicin |
| C 6. Classify antineoplastic agents with examples. Outline the synthesis of Aciclovir and cis-platin. | 4/5 | 3-4 | 3-4 |
| OR | | | |
| What are drug receptors? Discuss the drug receptor interactions | 3/4 | 3-5 | 3-4 |
| C 7. Define and classify hypoglycaemic agents with suitable examples. Add a note on SAR of Tolbutamide derivatives. | 3/4 | 3-4 | 3-4 |
| OR | | | |
| Explain the role of Insulin and the mechanism behind its storage and production in body | 4/5 | 3-4 | 3-4 |

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