Total No. of Questions: 3 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Pharmacy
End Sem Examination May-2024
PY3CO23 Medicinal Chemistry -III

Programme: B. Pharm. Branch/Specialisation: Pharmacy

Duration: 3 Hrs. **Maximum Marks: 75**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1	i.	Define antibiotics. Give structure of any 2 Tetracyclines.	**2**
	ii.	Write mechanism of action of aminoglycosides.	**2**
	iii.	Define prodrug. Give example of any one prodrug.	**2**
	iv.	Give the structure and clinical use of Chloroquine.	**2**
	v.	Give the structure of any 2 Urinary tract anti-infective agents	**2**
	vi.	Write mechanism of action of anti-tubercular agents.	**2**
	vii.	Define anti-protozoal agents and anthelmintic agents.	**2**
	viii.	Give the structure and clinical use of Dapsone.	**2**
	ix.	What is Hammet's electronic parameter?	**2**
	x.	What is Pharmacophore? Enlist physicochemical parameters used in QSAR.	**2**
Q.2		Attempt any two:	
	i.	Give detailed classification of Penicillin. Discuss about β-Lactam antibiotics and its SAR.	**10**
	ii.	Explain etiology of malaria. Give SAR of Quinolines as Antimalarial agents.	**10**
	iii.	(a) Discuss Mechanism of action and structural classification of Aminoglycosides.	**5**
		(b) Write short note on Macrolide antibiotics.	**5**
Q.3		Attempt any seven: Two questions from each section is compulsory.	
		Section - A	
	i.	Define and classify Antiviral drugs. Give mechanism of action and synthesis of Acyclovir.	**5**

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	ii.	What are MDR-TB and XDR -TB? Give the classification of antitubercular drugs.	**5**
	iii.	Explain mechanism of action and SAR of Quinolones as Urinary tract anti-infective agents.	**5**
		Section - B	
	iv.	What do you mean by Anti-protozoal drugs? Discuss SAR, synthesis and mechanism of action of Metronidazole.	**5**
	v.	Give structure, clinical uses and synthesis of Sulfamethoxazole or Trimethoprim.	**5**
	vi.	Discuss structural classification and mechanism of action of antifungal drugs.	**5**
		Section - C	
	vii.	Discuss in detail about Pharmacophore modelling in QSAR.	**5**
	viii.	Explain Tafts steric parameter and Hansch analysis in drug design.	**5**
	ix.	What is Combinatorial Chemistry? Explain solution phase synthesis.	**5**

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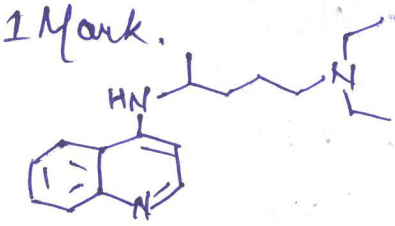
PY3CO23 Medicinal Chemistry - III
B. Pharm

Q1 → (i) Antibiotics definition – 1 Mark.
Tetracycline structure (any 2) – 0.5 Mark each.

(ii) MOA of Aminoglycosides – 2 Mark.
(Inhibit polypeptide synthesis & codon misreading.

(iii) Prodrug definition – 1 Mark.
1 Example – 1 Mark.

(iv) Chloroquine
Structure –
(1 Mark)



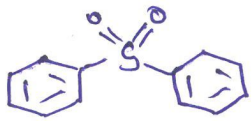
Use – Antimalarial (1 Mark)

(v) 2 UT Anti-infective agents – example – 1 Mark each

(vi) MOA of Anti-tubercular agents – 2 Marks
↳ Cell wall biosynthesis inhibition
↳ DNA supercoiling.
↳ Protein synthesis inhibition

(vii) Antiprotozoal agents definition – 1 Mark
Anti-helminthic agents definition – 1 Mark.

(viii) Dapsone
structure –



1 Mark.

Use – sulfone (Anti-bacterial) 1 Mark.

~~(viii)~~

(ix) Hammett electronic parameter – 2 Marks
A type of LFER analysis designed to model electronic effect of substituents on aromatic system.

(x) Pharmacophore definition – 1 Mark.
Physicochemical parameters – 1 Mark
(any 4)

Q2 →

(i) Penicillin classification – 3 Marks.
β-lactam antibiotics – 3 Marks.
SAR of β-lactam antibiotics – 4 Marks.

(ii) Etiology of Malaria – 5 Marks
SAR of Quinolines – 5 Marks.

(iii) (a) Mechanism of Action – 2.5 Marks.
Structural classification – 2.5 Marks.
(b) Macrolide antibiotics – Brief description
2 Examples with structure – 2.5 Marks
Mechanism of Action – 2.5 Marks.

Section-A

Q3 → (i) Antiviral drugs definition – 1 Mark
Classification – 2 Mark
MOA – 1 Mark.
Acyclovir synthesis – 1 Marks.

(ii) MDR-TB – 1 Mark
XDR-TB – 1 Mark
Classification of anti-TB drugs – 3 Marks.

(iii) Quinolones – MOA – 2.5 Marks
SAR – 2.5 Marks.

Section-B

(iv) Antiprotozoal drugs definition – 1 Mark.
SAR – 2 Marks
Synthesis – 1 Mark
MOA – 1 Mark.

(v) Sulfamethoxazole/Trimethoprim →
Structure – 1 Mark
Use – 1 Mark
Synthesis – 3 Marks.

(vi) Antifungal drugs -
Structural classification - 3 Marks
Mechanism of Action - 2 Marks.

Section - C

(vii) Pharmacophore - 1 Mark
Pharmacophore modelling - 4 Marks.

(viii) Taft's steric parameter - 2.5 Marks.
Hansch analysis - 2.5 Marks.

(ix) Combinatorial Chemistry - 2 Marks.
Solution phase synthesis - 3 Marks.