Q.P. Code :31550

[Time: Three Hours] **[Marks:70]**

Please check whether you have got the right question paper.

N.B: 1. All questions are compulsory.
2. Write structures wherever necessary.

Q.1 A) Briefly answer the following questions: 10

1. Explain – 'van der waals interactions'.
2. "Nucleic acids can act as drug targets" explain using suitable example.
3. Name the coenzyme involved in sulfate conjugation.
4. Illustrate the significance of any one post translational modification with a suitable example.
5. Briefly discuss the significance of SAR studies.
6. Explain – 'Tertiary structure' of a protein.
7. Give an example of a GPCR.
8. Which carbonyl oxygen can act as a better Hydrogen bond acceptor amongst RCOR and $RCOO^{\ominus}$? Justify.
9. Give one example of a recombinant protein approved for human use.
10. Briefly explain the term 'Proteomics'

B) Match column A with columns B and C. 05

A		B	C
i)	Non – competitive inhibition	Oligonucleotides	Topoisomerase
ii)	Tertiary structure of DNA	K_m unaffected	Target nucleic acids
iii)	Glucuronidation	Supercoiling	V_{max} decreases
iv)	Azoles	Uridine – 5' – diphospho - $\propto$ - D – glucuronic acid	Lanosterol - 14$\propto$ - demethylase
v)	Antisense therapy	Target fungal enzyme	Phase – II

Q.2 A) Answer the following: 04

i) Enlist any four intermolecular forces involved in drug- receptor interactions.

ii) Complete the following table:

Receptor: Binding regions	Ligand: Binding groups	Type of intermolecular interaction
$\oplus$ - NH_3		
- OH		

B) Give the structure and generic name for the following (Any three) 03

i) A Monobactam
ii) A Prodrug of tetracycline
iii) A degradation product of penicillin
iv) A third generation cephalosporin.

C) Answer the following questions (Any two) 04

i) Give the generic name, structure and name the enzyme inhibited by the following: 5–Amino –1–cyclpropyl –7– [3,5 –dimethyl piperazin–1–y1] –6,8– difluoro – 4-oxo – quinoline – 3 – Carboxylic acid.

ii) Give the structure and nomenclature of a sulfonamide used for ophthalmic use.

iii) Comment on the structural features in fluoroquinolones that influence phototoxicity.

Q.3 A) Explain the following with a suitable example 04

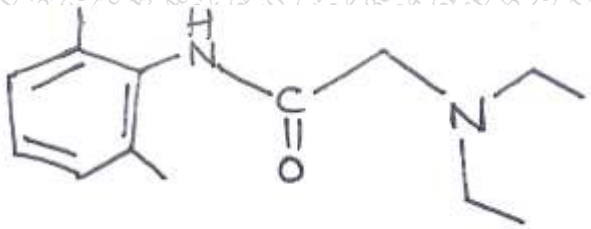
i) Ion – channel receptors
ii) Signal transduction.

B) Outline the synthetic route and give suitable reagents and reaction conditions for Pyrimethamine OR Primaquine. 03

C) Answer the following: 04

i) Justify the statement – "Functional diversity of Proteins".
ii) Define the terms: 'Efficacy' and 'Potency'.

Q.4 A) i) Predict any two Phase – I metabolites for the given molecule 02



ii) List any four Phase – II metabolic reactions. 02

B) Outline the synthesis with necessary reagents and reaction conditions for Ampicillin OR Cloxacillin. 03

C) Give reason for the following: 04

i) Drug should have appropriate solubility and partition coefficient for oral administration

ii) Co – trimoxazole is an example of synergism.

Q.5 A) Based on SAR, Predict the effect of the following structural changes on activity. 04

i) Introduction of a dimethylphenoxy substituent on acyl side chain in pencillins.

ii) Epimerization at position 4 in tetracyclines.

iii) Addition of alkoximino group in acyl side chain of Cephalosporins.

iv) Introduction of fluoro group at 6 – position in fluoroquinolones.

B) Outline the synthesis of PAS with suitable reagents and reaction conditions. 03

C) Answer the following: 04

i) Give the generic name and structure of a schizonticidal antimalarial drug.

OR

i) List the chemical features of artemisinin, and give the structure of any one artemisinin derivative.

ii) Give structure and use of Mebendazole.

Q.6 A) Answer in brief: 04

i) Give the structure and mechanism of action of Flucytosine.

ii) Write a short note First line anti – tubercular agents.

B) Outline the synthetic route for clotrimazole OR Metronidazole with suitable reagents and reaction conditions. 03

C) Answer in brief: 04

i) Discuss the metabolic pathways for tertiary amines

ii) Structural features of Amino glycoside class of antibiotics.

****