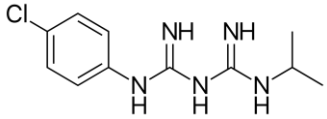
Time: 3 Hours **Marks : 80**

NOTE: All questions are compulsory
Write structures and reactions wherever necessary

Q.1.A. Answer the following (Any Eight): (08)

i. Give an example of a bacterial enzyme and its inhibitor
ii. Give an example of a drug that targets a nucleic acid
iii. 'logP influences biological activity'-explain with a suitable example
iv. Write the generic name and structure for: 2-Ethylthioisonicotinamide
v. Identify the forces that are involved in stabilization of the DNA helix
vi. Explain-'Hydrophobic interactions'
vii. Give an example of a drug that intercalates with DNA
viii. Identify the structure given below and write the active form:



ix. Write the structure and generic name of:
(S)-[2,8-bis(trifluoromethyl)quinolin-4-yl]-[(2R)-piperidin-2-yl]methanol

B. Answer in brief: (08)

i. Using a suitable example bring out the influence of geometric isomerism on biological activity
ii. Explain the following terms: a) Efficacy b) Agonist
iii. Discuss the metabolic pathways for – CHO functional group.
iv. Identify two mechanistic classes of drugs that target nucleic acids. Give one example each

C. Match column A with B and C: (04)

	A	B	C
i	Conjugation with amino acid	3'-Phosphoadenosine-5'-phosphosulfate	S-Adenosylmethionine
ii	Sulfate conjugation	Methyltransferase	Mercapturic acid derivative
iii	Methylation	ϒ-Glutamylcysteinylglycine	Activation of -COOH group
iv	Conjugation with Glutathione	Glycine	Potential biotoxification

Q.2. Answer the following (Any six): (12)

i. "Proteins act as targets for many drugs"- discuss using suitable examples
ii. Compare and contrast Un-competitive and non-competitive enzyme inhibition
iii. What are monoclonal antibodies, give example
iv. Illustrate the signal transduction pathway for GPCR involving adenylate cyclase
v. Give structure, generic name and enzyme inhibited by:
3- [(o-Chlorophenyl) -5-methyl-4-isoxazolyl] penicillin.
vi. Enlist the chemical features of polyene antifungal antibiotics and give example
vii. Give structure and use of Thiabendazole

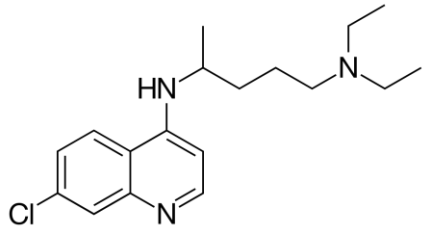
Q.3.A. Classify the Cephalosporins given below based on generation and suggest the suitable route of administration. (04)
Cefadroxil, Cefamandole, Cefuroxime, Ceftriaxone

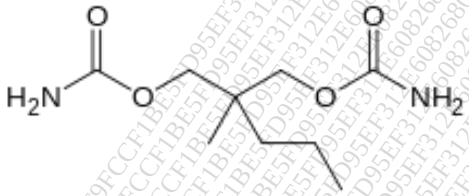
B)

i) Methicillin is given through parenteral route. Justify

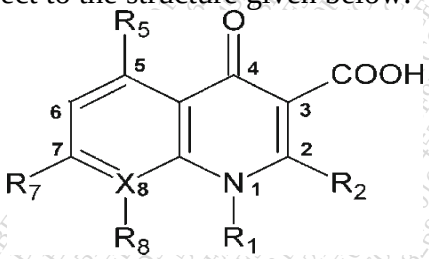
ii) Give the structures and names of any two degradation products of tetracycline

C) Predict any two Phase-I metabolites for each of the following: (04)

i. 

ii. 

Q.4.A. Answer the following with respect to the structure given below: (04)



i. Name any one drug containing the above basic structure and enzyme inhibited by it

ii. Annelation of R_1 and R_8 leads to which active drug.

iii. Indicate any one substitution at R7 that gives potent compound

iv. Comment on the substituents that influence phototoxicity

B. Indicate to which mechanistic class the following drugs belong to (04)
(Structures to be written)

i. Flucytosine
ii Griseofulvin
iii. Naftifine
iv. Miconazole

C. Write a note on anti-leprotic drugs (04)

Q.5. A. Name the strongest and weakest drug-receptor interactions.
Briefly discuss "ionic interactions" and their role in drug receptor binding (04)

B. List different types of receptors and discuss "Ion channel receptors" in detail (04)

C. Discuss Kinase linked receptors with respect to : i) structure ii) signal transduction (04)

Q.6. Outline the synthetic pathway for any four of the following drugs along with necessary reagents and reaction conditions. (12)

i) Cloxacillin ii) Dapsone v) Mebendazole
iii) Pyrimethamine iv)Diloxanide furoate
