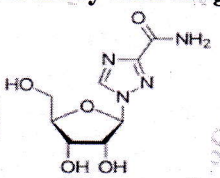
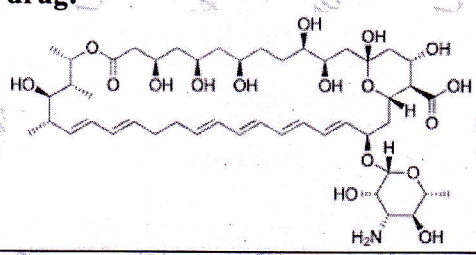
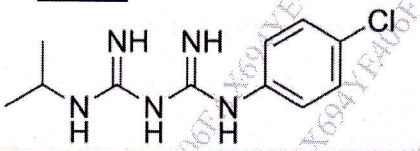
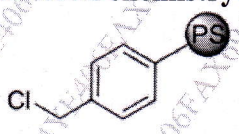
T.Y.B.Pharm
Sem-VI
28/10/2025
ATKT

Time: 3 Hours

Total Marks: 75

Q.I	Answer the following Multiple Choice Questions. Select the most appropriate option for each statement.			20M
	Questions		Options	
1	Chloramphenicol palmitate is used as a prodrug of chloramphenicol to ____	a	increase the water solubility	
		b	mask the bitter taste of chloramphenicol	
		c	to decrease the lipophilicity	
		d	to decrease the half life	
2	Sulfasalazine is an example of	a	prodrug of prodrug	
		b	tripartite prodrug	
		c	bipartite prodrug	
		d	mutual prodrug	
3	Identify following drug. 	a	Ribavirin	
		b	Zidovudine	
		c	Zalcitabine	
		d	Didanosine	
4	The ____ epimer of quinine is inactive	a	C9	
		b	C4	
		c	C3	
		d	C8	
5	Identify the following antifungal drug: 	a	Natamycin	
		b	Amphotericin B	
		c	Nystatin	
		d	Griseofulvin	
6	Identify the second line anti-tubercular agent.	a	Isoniazid	
		b	Ethionamide	
		c	Ethambutol	
		d	Rifampicin	

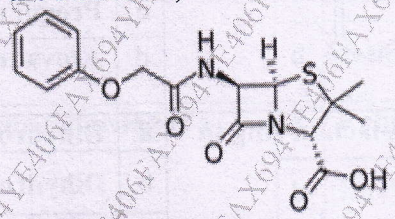
7	Example of a β-lactamase inhibitor is	a	Penicillin G	
		b	Aztreonam	
		c	Cefepime	
		d	Clavulanic acid	
8	Identify the prodrug of dapsone	a	Carboxydapsone	
		b	Hydroxydapsone	
		c	Acedapsone	
		d	Methoxydapsone	
9	Identify which of the following is a prodrug?	a	Rolitetracycline	
		b	Doxycycline	
		c	Chlortetracycline	
		d	Minocycline	
10	Identify the class of Zidovudine	a	Protease inhibitors	
		b	Nucleoside reverse transcriptase inhibitor	
		c	Non-nucleoside reverse transcriptase inhibitor	
		d	DNA polymerase inhibitor	
11	Which of these is an acid unstable antibiotic.	a	Ampicillin	
		b	Penicillin G	
		c	Penicillin V	
		d	Cloxacillin	
12	Pyrantel pamoate causes _____ in the helminths	a	spastic paralysis	
		b	hypotonic state	
		c	polarisation of the neuromuscular junction	
		d	Flaccid paralysis	

13	Identify the reactant used in synthesis of ciprofloxacin	a	Diethyl phthalate	
		b	Diethyl succinate	
		c	Diethyl malonate	
		d	Ethyl acetoacetate	
14	The following molecule is metabolised to _____ 	a	Pyrimethamine	
		b	Cycloguanil	
		c	Proguanil	
		d	Atovaquone	
15	The ring attached to β-lactam ring in cephalopsoprin is	a	Dihydrothiazine	
		b	Dihydrothiazole	
		c	Dihydropyridine	
		d	Dihydropyrimidine	
16	Π represents_____ in 2D QSAR	a	Steric parameter	
		b	Hydrophobicity	
		c	Electronic parameter	
		d	Electrostatic parameter	
17	Silver sulfadiazine is used for the treatment of _____	a	malaria	
		b	ulcerative colitis	
		c	ophthalmic infections	
		d	burns	
18	Identify active isomer of ethambutol	a	S, R (+) enantiomer	
		b	S, R (-) enantiomer	
		c	S, S (+) enantiomer	
		d	R, R (+) enantiomer	
19	The following is an important resin used in combinatorial chemistry: 	a	Wang resin	
		b	Rink resin	
		c	Merrifield resin	
		d	Dihydropyran	

20	If the binding site shows the presence of HBA, correspondingly _ should be present on the ligand.	a	HBA	
		b	HBD	
		c	Bulky group	
		d	Hydrophobic group	

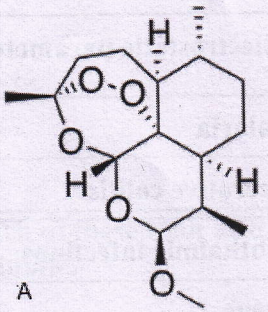
Q.II Attempt any Two out of given Three questions. **20M**

1A With reference to the structure, answer the following questions. **4M**

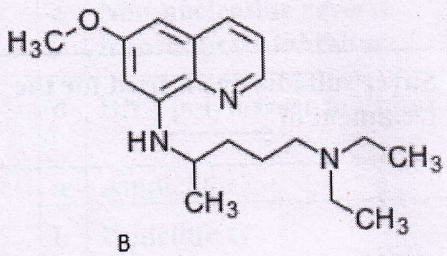


i. Give the generic name of the above drug.
ii. Draw the structure of the salt form of the above drug.
iii. Above drug is metabolized by which enzyme?
iv. Explain one modification done to improve its penicillinase resistance with name and structure of the compound.

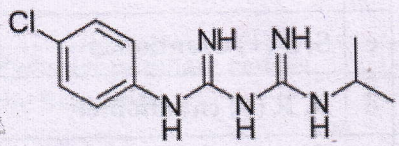
1B Based on the structures given below, answer the following questions; **4M**



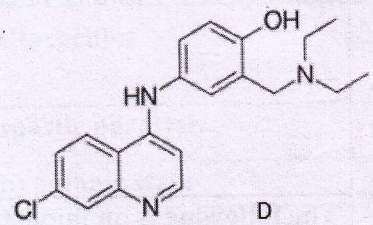
A



B



C



D

i. Identify (A) and comment on its hydrophobicity
ii. Write the generic name and identify the chemical class of (B)
iii. Write the generic name and structure of active form of (C)
iv Identify (D) and write the structure of its metabolite

1C An aged solution of tetracycline is found to be active. True/ False. Justify **2M**

2A Elaborate the structural features of streptomycin in detail and mention the class. 4M

2B Give the generic name and structure for: 4M

i. Hydrophilic analog of Artemisinin
ii. Drug used for the treatment of chloroquine-resistant plasmodium falciparum infections
iii. Antimalarial drug that interferes with the plasmodium's mitochondrial electron transport system
iv. 2,4-Diaminopyrimidine DHFR inhibitor

2C Write the mechanism of lincomycins, give one example. 2M

3A Discuss the development of Cephalosporin giving suitable examples with structures. 4M

3B Discuss any four applications of prodrugs with suitable examples. 4M

3C Give one example of a synergistic drug combination used in malaria, justify. (Structures required) 2M

Q.III Attempt <u>any Seven out of given Nine questions.</u> 35M

1. A. Write generic name and structure for following anti-tubercular agents. 3M

a. Agent structurally similar to D alanine.
b. A bioisosteric analogue of isoniazid.
c. An inhibitor of arabinosyl transferase

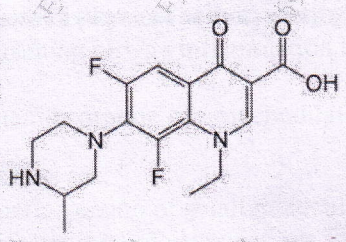
B. Give synthetic scheme for Isoniazid mentioning reagents and reaction conditions 2M

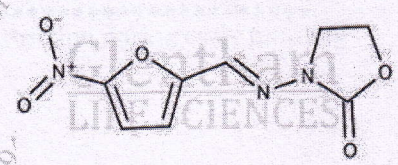
2. A. Give synthetic scheme for Acyclovir, mentioning reagents and reaction conditions. 4M

B. Elaborate significance of combination therapy in treatment of viral infection with suitable examples. 1M

3. A. Answer the following with respect to structures given 3M

a. b.

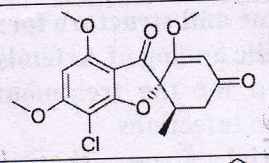
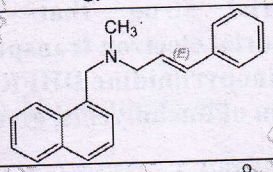
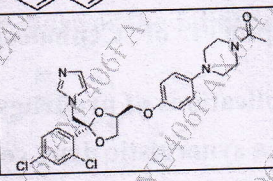




i. Write generic names of a and b.
ii. Name the enzyme inhibited by a
iii. What modification is done to reduce phototoxicity of a? Give structure

B. Compare biological activity of levofloxacin and ofloxacin. Give structures 2M

4. a. Match the columns: 3M

	Name	Structure	Class
i	Naftifine		Antifungal antibiotic
ii	Ketoconazole		Allylamine
iii	Griseofulvin		Azole

b. Write any two classes of antiviral agents with example for each. 2M

5. Outline the synthetic route for Trimethoprim with all necessary reactants and reaction conditions. Name the enzyme inhibited by it. 5M

6. a. Give two examples of drugs used for the treatment of amoebiasis (structure required) 3M
b. Write the enzymatic degradation product of Cefuroxime. 2M

7. a. List the structural features of macrolides. Give an example of an acid-stable macrolide 3M
b. Write a brief note on the Benzimidazole class of anthelmintics 2M

8. Differentiate between solid and solution phase synthesis in combinatorial chemistry using suitable example 5M

9. Enlist various physicochemical parameters involved in QSAR? Explain any two parameters in detail 5M

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