Name: **Enrolment No:**	

UPES

End Semester Examination, May 2024

Course: Medicinal Chemistry-III **Semester: VI**

Program: B. Pharm **Duration: 03 Hours**

Course Code: BP601T **Max. Marks: 75**

Instructions: No additional material like graph paper, log table, *etc* is allowed for this examination.

SECTION A

(20 Q x 1 M = 20 Marks)

S. No.	Attempt all questions from section A.	Marks	COs
Q 1	Which of the following statement is true for first line anti-TB drugs? (A) High efficacy and high toxicity (B) High efficacy and low toxicity (C) Low efficacy and high toxicity (D) Low efficacy and low toxicity	**1**	CO1
Q 2	Which of the following enzymes is inhibited by fluoroquinolones? (A) DNA polymerase (B) RNA polymerase (C) DNA gyrase (D) Reverse transcriptase	**1**	CO1
Q 3	Which of the following is a first-generation fluoroquinolones? (A) Ciprofloxacin (B) Levofloxacin (C) Gatifloxacin (D) Moxifloxacin	**1**	CO1
Q 4	Which of the following antiviral drug contains the triazole heterocyclic ring? (A) Ribavirin (B) Zidovudine (C) Amantadine (D) Delavirdine	**1**	CO2
Q 5	Which of the following anti-amoebic drug contains the quinoline ring? (A) Metronidazole (B) Diloxanide (C) Pentamidine (D) Iodoquinol	**1**	CO2
Q 6	Which of the following anti-helminthic drugs cause the mazoti reaction as major side effect? (A) Oxamniquine (B) Praziquantel (C) Niclosamide (D) Ivermectin	**1**	CO1
Q 7	Which of the following antifungal drugs is allylamine derivative? (A) Griseofulvin (B) Clotrimazole (C) Itraconazole (D) Naftifine	**1**	CO2
Q 8	Which of the following is a major side effect of sulphonamides due to low solubility? (A) Headache	**1**	CO1

	(B) Ototoxicity (C) Crystalluria (D) Agranulocytosis		
Q 9	Which of the following is an inhibitor of penicillinases? (A) Ampicillin (B) Cloxacillin (C) Sulbactam (D) Oxytetracycline	**1**	CO1
Q 10	Which of the following is a synthetic antibiotics? (A) Cephalothin (B) Tetracycline (C) Penicillin G (D) Chloramphenicol	**1**	CO1
Q 11	Epimerization in tetracycline takes place at……. (A) Position 2 (B) Position 3 (C) Position 4 (D) Position 9	**1**	CO2
Q 12	Aminoglycosides work by irreversibly binding to……. (A) dihydrofolate synthetase (B) 50S ribosomal subunit (C) 30S ribosomal subunit (D) RNA-dependent DNA polymerase	**1**	CO1
Q 13	Which of the following penicillins analog is susceptible to penicillinase? (A) Methicillin (B) Penicillin-V (C) Cloxacillin (D) Oxacillin	**1**	CO1
Q 14	Identify the drug(s) whose structure(s) contain(s) the furan ring: (A) Nitrofurantoin (B) Cefuroxime (C) Furazolidone (D) All of the above	**1**	CO2
Q 15	……..contains the octahydronaphthacene ring. (A) Cephalosporin (B) Doxycycline (C) Penicillin (D) Thienamycin	**1**	CO2
Q 16	What crucial features of quinolines are vital for antimalarial activity? (A) Quinoline ring (B) Secondary OH at 9^{th} position (C) 4-5 carbon chain length between secondary OH and terminal tertiary amine (D) All of the above	**1**	CO2
Q 17	The beta-lactamase enzyme catalyzes…….. (A) the biosynthesis of the penicillin structure from the amino acid valine. (B) the final cross-linking reaction to form the bacterial cell wall. (C) the hydrolysis of the acyl side chain from penicillin structures. (D) the hydrolysis of the four-membered beta-lactam ring present in penicillin.	**1**	CO1
Q 18	Penicillins are derivatives of: (A) 6-Nitropenicillanic acid (B) 7-Nitropenicillanic acid (C) 7-Aminopenicillanic acid (D) 6-Aminopenicillanic acid	**1**	CO2

Q 18	Which of the following drugs binds with the 30S subunit of ribosome and prevent the protein synthesis? (A) Kanamycin (B) Penicillin-G (C) Azithromycin (D) Cefuroxime	**1**	CO1
Q 20	Which of the following substructure is common in penicillins and cephalosporins? (A) Thiazolidine (B) Thiazoline (C) β-lactam (D) Δ^3 C=C bond	**1**	CO2
	SECTION B (20 Marks) **(2 Q x 10 M = 20 Marks)**		
	Attempt any two questions from section B.	**Marks**	
Q 1	Draw the chemical structure and discuss mechanism of action of any four of the following drugs: (a) Primaquine (b) Amoxicillin (c) Cephalexin (d) Methicillin (e) Pamaquine	**4x2.5**	CO3
Q 2	Explain the structure-activity relationships of penicillin. Write the scheme for the synthesis of the following drugs: (a) Chloramphenicol (b) Chloroquine	**[5+(2x 2.5)]**	CO4
Q 3	Discuss the structure activity relationship of fluoroquinolones with suitable examples. Explain the synthesis of ciprofloxacin in detail.	**6+4**	CO4
	SECTION-C (35 Marks) **(7 Q x 5 M = 35 Marks)**		
	Attempt any seven questions from section C.	**Marks**	
Q 1	Discuss mechanism of action of sulphonamides. Write a note on co-trimoxazole with suitable examples and their chemical structure.	**5**	CO2
Q 2	Discuss the mechanism of actions and uses of kanamycin, ampicillin, and clavulanic acid.	**5**	CO2
Q 3	Classify antibiotics with suitable examples.		CO2
Q 4	Write a note on basic concepts and applications of prodrugs design.	**5**	CO2
Q 5	Draw the structure of any anti-tubercular drug which contain/has: (a) Pyridine ring (b) Thioamide derivative (c) Pyrazine ring (d) Salicylic acid derivative (e) One amino acid containing antibiotic.	**5**	CO3
Q 6	Explain the imidazole based anti-amoebic drugs. Discuss the synthesis of metronidazole.	**5**	CO3
Q 7	Discuss the synthesis of tolnaftate and dapsone in detail.	**5**	CO3
Q 8	Write the chemical structures of any two of the following drugs: Quinine, Cephalothin, and Oxytetracycline.	**5**	CO3
Q 9	Describe the structure-activity relationships of 4-aminoquinolines.	**5**	CO4