


Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022
Set-B

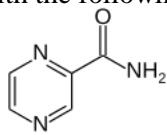
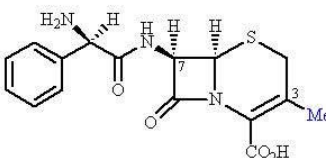
Course: Medicinal Chemistry III Theory
Program: B.Pharm
Course Code: BP601T

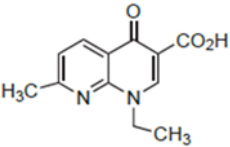
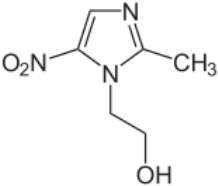
Semester : VI
Duration : 03 Hours
Max. Marks : 75

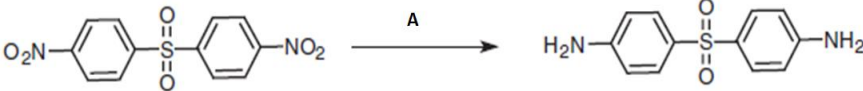
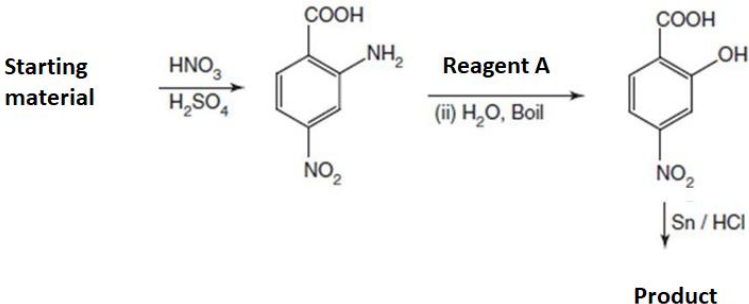
Instructions: Read each question carefully. Attempt all questions under Section A (20 x 1 marks). Attempt any two questions out of three under Section B (2 x 10 marks). Attempt any seven questions out of nine under Section B (7 x 5 marks).

SECTION A
Multiple choice questions

(20Qx1M=20 Marks)

S. No.		Marks	COs
Q1	Which of the following ring is present in Cefalothin? A) Thiazoline B) Thiazolidine C) Thiophene D) Imidazole	1	CO1
Q2	What crucial feature of a cephalosporin is involved in its mechanism of action? A) Carboxylic acid B) Beta-lactam ring C) Acyl side chain D) Thiazolidine ring	1	CO1
Q3	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 ring present in penicillins	1	CO4
Q4	The correct name of the drug with the following structure is: <div style="text-align: center;">  </div> A) Ampicillin B) Isoniazid C) Pyrazinamide D) Ethambutol	1	CO1
Q5	What is the common name of the drug with the following structure: <div style="text-align: center;">  </div> A) Cefalothin B) Cefachlor C) Cefalexin D) Cefuroxime	1	CO1

Q6	Penicillin structure was determined using X-ray by: A) Paul Ehrlich B) Alexander Fleming C) Gerhard Donagk D) D. Watson	1	CO2
Q7	Which of the following interfere with DNA/RNA biosynthesis? A) Penicillin-C B) Cycloserine C) Nystatin D) Actinomycin	1	CO3
Q8	Penicillins are derivatives of: A) 6-Niropenicillanic acid B) 7-Nitropenicillanic acid C) 7-Aminopenicillanic acid D) 6-Aminopenicillanic acid	1	CO1
Q9	What is the name of the drug with the following structure?  A) Norfloxacin B) Gatifloxacin C) Nalidixic acid D) Ciprofloxacin	1	CO1
Q10	Identify the name of the drug with the following structure:  A) Metronidazole B) Tinidazole C) Ornidazole D) Ketoconazole	1	CO1
Q11	Which of the following penicillins is susceptible to penicillinase? A) Methicillin B) Penicillin-V C) Cloxacillin D) Oxacillin	1	CO1
Q12	Identify the drug(s) whose structure(s) contain(s) the furan ring: A) Nitrofurantoin B) Cefuroxime C) Furazolidone D) All of the above	1	CO4
Q13	Correct IUPAC name of the drug Ethionamide is: A) 2-Ethyl isonicotinamide B) 3-Ethyl isonicotinamide C) 2-Ethyl thioisonicotinamide D) 3-Ethyl thioisonicotinamide	1	CO4
Q14	Which of the following binds to 50S subunit of the bacterial ribosome? A) Tetracycline B) Clindamycin C) Streptomycin D) All of the above	1	CO1

Q15	<p>The stability of benzyl penicillin can be enhanced by substitution of _____ at alpha position of the amide function:</p> <p>A) Electron withdrawing group B) Electron donating group C) Both electron donating or electron withdrawing group D) Steric group</p>	1	CO3
Q16	<p>Identify the reagent A in the following reaction:</p>  <p>A) Sulphuric acid B) Nitric acid C) Sn / HCl D) KMnO₄</p>	1	CO4
Q17	<p>Which of the following is a synthetic antibiotic?</p> <p>A) Cephalothin B) Tetracycline C) Penicillin G D) Chloramphenicol</p>	1	CO1
Q18	<p>Epimerization in tetracycline takes place at</p> <p>A) Position 2 B) Position 3 C) Position 4 D) Position 9</p>	1	CO3
Q19	<p>Aminoglycosides work by irreversibly binding to:</p> <p>A) Dihydrofolate synthetase B) 50S ribosomal subunit C) 30S ribosomal subunit D) RNA-dependent DNA polymerase</p>	1	CO1
Q20	<p>The Gray Baby Syndrome is a known adverse side-effect of:</p> <p>A) Azithromycin B) Chloramphenicol C) Streptomycin D) Amikacin</p>	1	CO2
<p>SECTION B (20 Marks)</p> <p>Attempt 2 Question out of 3 (2Qx10M=20 Marks)</p>			
Q1	<p>Describe the chemical structure, mechanism of action and important uses of the following drugs: (a) Gatifloxacin (b) Ethambutol (c) Proguanil (d) <i>para</i>-Amino salicylic acid</p>	2.5 x 4	CO1
Q2	<p>Explain the structure-activity relationships of aminoglycosides. Write the scheme for the synthesis of any two of the following drugs: (a) Ciprofloxacin (b) Chloramphenicol (c) Miconazole</p>	4+(2x3)	CO3, CO4
Q3	<p>Consider the reaction with the following scheme:</p> 	4+2+4	CO1, CO5

	In the above scheme: (i) Write the chemical structure and name of the starting material. (2+2marks) (ii) Give the details of the Reagents A. (2 marks) (iii) Write the chemical structure and name of the final product in the above reaction. (2+2marks)		
SECTION-C (35 Marks)			
Attempt 7 Question out of 9		(7Qx5M=30 Marks)	
Q1	Write a note on the etiology of malaria. Write the structure of Quinine.	(2+3)	CO2
Q2	Describe the structure-activity relationship of 8-aminoquinolines.	(2+3)	CO3
Q3	Write the synthesis of Chloroquine.	(5)	CO1
Q4	Write a note on the structure-activity relationship of Cephalosporins.	(5)	CO3
Q5	Write the mechanism of action and synthesis of Pamaquine.	(5)	CO4
Q6	Classify quinolines as antimalarial agents and cite suitable examples for each class.	(5)	CO2
Q7	Write the chemical structure, mechanism of action and uses of Doxycycline.	(5)	CO1
Q8	Elaborate the mechanism of action and synthesis of Isoniazid.	(5)	CO4
Q9	Write the chemical structure and uses of <u>any two</u> of the following drugs: Pyrazinamide, Ketoconazole, and Sulfamethizine	(2 x 2.5)	CO2