

Question Paper

Exam Date & Time: 11-May-2023 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Medicinal Chemistry III (Theory) [PCH-BP601T-S2]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) Sultamicillin is a prodrug of the type (1)
- [Bipartite](#)
[Mutual](#)
[Bioprecursor](#)
[Azo linked](#)
- 2) The antibiotic used to treat atypical tuberculosis is (1)
- [Azithromycin](#)
[Erythromycin](#)
[Roxithromycin](#)
[Clarithromycin](#)
- 3) Chloramphenicol is bitter in taste due to the presence of ----- in its structure. (1)
- [Hydroxyl group](#)
[Nitro group](#)
[Amino group](#)
[Chloro group](#)
- 4) Rifampin and Rifabutin are semi-synthetic derivatives of (1)
- [Rifamycin A](#)
[Rifamycin C](#)
[Rifamycin B](#)
[Rifamycin D & E](#)
- 5) Addition of nitrogen at C-8 in 4-Quinolones produced (1)
- [Norfloxacin](#)
[Sparfloxacin](#)
[Clinafloxacin](#)
[Tosufloxacin](#)
- 6) In solid phase synthesis, RINK Resin is suitable for attachment and release of (1)
- [Carboxylic acid](#)
[Carboxamide](#)
[Peptide product](#)
[Amide](#)
- 7) Which of the following is not used in the HIV-1 treatment? (1)

[Delavirdine](#)

[Zidovudine](#)

[Rimantadine](#)

[Stavudine](#)

- 8) Which antimalarial drug is commonly used for the prevention of malaria in travelers to areas with chloroquine-resistant Plasmodium falciparum? (1)

[Atovaquone-proguanil](#)

[Chloroquine](#)

[Artemisinin-based combination therapy](#)

[Primaquine](#)

- 9) What is the primary goal of antiretroviral therapy (ART)? (1)

[Cure HIV](#)

[Prevent HIV transmission](#)

[Manage HIV infection](#)

[Reduce the risk of opportunistic infections](#)

- 10) One of the following is a good example of prodrug to improve patient acceptance: (1)

[Chloramphenicol acetate](#)

[Chloramphenicol succinate](#)

[Chloramphenicol palmitate](#)

[Chloramphenicol hydrochloride](#)

- 11) Aminocyclitol system present in aminoglycosides (1)

[Contain 1,4-diamino cyclopentane central ring](#)

[Contain 1,4-diamino cyclohexane central ring](#)

[Contain 1,3-diamino cyclopentane central ring](#)

[Contain 1,3-diamino cyclohexane central ring](#)

- 12) Pick incorrect statement for Kanamycin (1)

[Possess 2-deoxystreptamine](#)

[Possess intestinal and systemic antibacterial property](#)

[Possess Poly cationic, highly polar and water soluble properties](#)

[Possess D-Ribose ring system](#)

- 13) Following Tetracycline has 6 chiral centers (1)

[Chlortetracycline](#)

[Minocycline](#)

[Oxytetracycline](#)

[Chlortetracycline](#)

- 14) The Self destruction of natural Penicillin results in (1)

[Oxazole ring formation](#)

[Hydroxazole ring formation](#)

[Azole ring formation](#)

[Hydrazole ring formation](#)

- 15) Chemical name of Dapsone is (1)

[4,4-diaminodiphenyl sulfone](#)

- 16) Sulphamethazine contains following structural feature (1)
- [4,4-dinitrodiphenyl sulfone](#)
[4-amino-4-hydroxydiphenylsulfone](#)
[4,4-dichloroaminodiphenyl sulfone](#)
- 17) The chemical name of Mefenide is (1)
- [2,6. dimethoxy thiazine](#)
[4,5-dimethy pyrimidine](#)
[4,5-dimethy pyridine](#)
[4,5-dimethoy pyridine](#)
- 18) Ornidazole, a 5-nitroimidazole has the following substitution (1)
- [Positions N1 is replaced by 3-chloro-2-hydroxypropyl.](#)
[Positions N1 is replaced by 2-chloro-3-hydroxyethyl.](#)
[Positions N2 is replaced by 2-chloro-3-hydroxypropyl.](#)
[Positions N2 is replaced by 3-chloro-2-hydroxypropyl.](#)
- 19) The following antiprotozoal drug is a Nitrothiazolidine derivative (1)
- [Ivermectine](#)
[Ferredoxin](#)
[Flaodoxin](#)
[Nitazoxanide](#)
- 20) A positive π value indicates (1)
- [That the \$\pi\$ substituent has a higher hydrophilicity than hydrogen](#)
[That the \$\pi\$ substituent has a lower hydrophobicity than hydrogen](#)
[That the \$\pi\$ substituent has equal hydrophilicity than hydrogen](#)
[That the \$\pi\$ substituent has a higher hydrophobicity than hydrogen](#)

II Long Answers

Answer all the questions.

- 1) Write the synthesis of Chloramphenicol with the names of all reagents and intermediates. (10)
 Explain the chemistry and SAR of 8-amino quinolones.
 Classify prodrugs in detail with suitable examples and their structure. (3+4+3=10)
- 2) What are urinary tract anti-infective agents? Classify them with one example. Write the SAR of 4-quinolones with chemical structure wherever required. (10)
 Classify antiTB agents and outline the synthesis of PAS. Explain the mechanism of action of Acyclovir with the help of diagram. (5+3+2=10)

III Short Answers

Answer all the questions.

- 1) Classify Penicillin derivatives giving examples for each class. 4M (5)
 Write the general structure of Penicillin with structural features 1M

- 2) Drawing the basic structure, explain SAR features of Cephalosporin. 4M (5)
Name any two cephalosporin having substitution at 3rd position of nucleus. 1M
- 3) What is combinatorial chemistry and combinatorial library? Explain the Mix and split method of synthesis with the help of a diagram. (5)
- 4) Classify Anthelmintic giving examples. 4M (5)
Write the structure and uses of Eflornithine 1M
- 5) Give the chemical classification of Sulphonamides giving examples. 4M (5)
How do you synthesize Sulphacetamide 1M
- 6) What are DHFR inhibitors? Give the structure of two such drugs. 4M (5)
What is Co-trimoxazole? Give its use. 1M
- 7) Enlist and explain the essential steps involved in QSAR studies. 5M (5)

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