Exam Date & Time: 19-Jul-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Medicinal Chemistry III [PCH-BP601T]

Marks: 75 **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) The aglycon part of erythromycin is called as

1)	Streptomycin	2)	Erythromycin B	3)	Erythronolide A	4)	Erythromycin D	(1)

2) Which of the following macrolides contains 15 membered ring in its structure

1)	Erythromycin	2)	Azithromycin	3)	Clarithromycin	4)	Roxithromycin	(1)

3) Cycloguanil is a metabolite of

1)	Biguanide	2)	Metformin	3)	Phenformin	4)	Chloroguanide	(1)

4) Presence of F or Cl at 8th position in quinolone in Fluoroquinolones makes the compound more active due to

1)	Good solubility	2)	Good oral absorption	3)	Good metabolism	4)	Good distribution	(1)

5) The heterocyclic ring present in Nalidixic acid is

1)	Pyridine	2)	Quinoine	3)	Napthyridone	4)	Napthyridine	(1)

6) Bioactivation of isoniazid is done by

1)	Catalase enzyme	2)	catalase-peroxidase enzyme complex	3)	Oxidase enzyme	4)	Oxidase-Peroxidase enzyme complex.	(1)

7) Famciclovir is a prodrug of

1)	Acycovir	2)	Valgancyclovir	3)	Penciclovir	4)	Gancyclovir	(1)

8) One of the following is HIV-I & II protease inhibitor

1)	Ritonavir	2)	Saquinavir	3)	Delavirdine	4)	Indinavir	(1)

9) The heterocyclic ring present in Mepacrine is

1)	Phenothiazine	2)	Quinoline	3)	Amino Acridine	4)	Benzopyran	(1)

10) Solubility of Chloramphenicol is improved by converting it into the following

1)	Chloramphenicol succinate	2)	Chloramphenicol hydrochloride	3)	Chloramphenicol palmitate	4)	Chloramphenicol sulphate	(1)

11) Which of the following is analogues to Sigma constant in QSAR

1)	Log P value		2)	pKa value		3)	Rf value		4)	Es constant	

(1)

12) Select the false statement from below.

1)	Carboxypenicillins are susceptible to beta-lactamase unless combined with a beta-lactamase inhibitor	2)	Azlocillin is Acylureidopenicilline with piperidine ring	3)	In the Thiazolidine ring of Penicillin, Sulphur is usual but not essential for the activity as per the SAR	4)	Sulbactam, a Penicillanic acid sulphone derivative, Beta lactamase inhibitor

(1)

13) Aminoglycosides are most effective against which kind of microorganism?

1)	Aerobic gram-positive bacteria		2)	Aerobic gram-negative bacteria		3)	Anaerobic gram-positive bacteria		4)	Anaerobic gram-negative bacteria	

(1)

14) Which of the rings in Tetracycline offers the best potential for modification in order to get new antibacterial analogues

1)	Ring A		2)	Ring B		3)	Ring C		4)	Ring D	

(1)

15) The chemical name N,N-diethyl-4-methylpiperazine-1-carboxamide is corresponds to

1)	A drug Used to treat infections caused by protozoa like giardiasis and amebiasis		2)	An antifungal used for subcutaneous and systemic mycoses		3)	An anthelmintic used as the citrate in the treatment of filariasis		4)	An antibiotic used in anaerobic bacterial infection	

(1)

16) Which of the following statement not holds good for Mitroimidazole

(1)

1)	Synthesised		2)	A		3)	These		4)	Under go	

	by cyclisation of Glyoxal, ammonia and formaldehyde		prodrug which is selective for anaerobic bacteria		can covalently bind to DNA, disrupting its helical structure		reduction to give nitroso intermediates				

17) Phenoxymethyl penicillin has

1)	Antibacterial spectrum of penicillin V is identical to PnG		2)	Bactericidal action against penicillin-sensitive microorganisms		3)	MOA as it inhibits the biosynthesis of cell-wall		4)	All the above	

(1)

18) Which of the following is not a sulphone antibacterial

1)	Promin		2)	Griseofulvin		3)	Solasulphone		4)	Sulphetrone	

(1)

19) Which basic ring is present in Cephalosporins

(1)

1)	Penem		2)	Cefem		3)	Penam		4)	Carbapenem	

20) Which of the following statement is false for sulphonamide

1)	Sulphonamides are selective drugs used to treat urinary tract infections		2)	Amphoteric, they generally function as weak base due to the presence of SO2 NH2 group		3)	Sensitive to light and incompatible with strong oxidizing agents		4)	Are structural analogues and competitive antagonists of para-amino benzoic acid	

(1)

II Long Answers

Answer all the questions.

1) Explain the chemistry, SAR and synthesis of Chloramphenicol. (2+3+3)
List out the advantages of prodrugs? (2) (10)

2) Give the chemical classification of synthetic Anti-fungal agents giving example for each class.
How do you synthesise Metronidazole?
What is Co-trimoxazole? Write the composition, structure and specific use of the same. (3+3+1+3) (10)

III Short Answers

Answer all the questions.

1)	Explain the chemistry of Quinine. Write the mechanism of action of Atovacone and Sulphadoxine as antimalarials. (3+2)	(5)
2)	Write the structure and mechanism of action of the following compounds a) Norfoxacin b) Furazolidone c) Lamivudine d) Cycloserine (1.25x4)	(5)
3)	Outline the synthesis of Acyclovir and mention its specific use. Explain the mechanism of action of Pyrazinamide. (3+2)	(5)
4)	Write a note on the requirements of Solid Phase synthesis in Combinatorial Chemistry.	(5)
5)	Write the Hansch equaton for small range of hydrophobicity. Predict the biological activity of the following QSAR equation: (3) Log $1/C = 1.32\,\pi + 1.68\,\sigma + 8.89$ What is the mechanism of action of Piritrexime and give the general chemical structure of this compound to which it belongs to. (2)	(5)
6)	By giving the general structure, enlist any six points under SAR of Cephalosporin.3 What are monobactams? Draw the general structure and clinical uses. 2	(5)
7)	Drawing the general stucture, enlist any 6 important structural features of sulphonamides (3) Write the structure and uses of any one anthelmintic agent. (2)	(5)

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