

Exam Date & Time: 06-Jun-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Medicinal Chemistry III [PCH-BP601T-S1]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) Which macrolide doesn't inhibit CYP3A4?

1) Clarithromycin	2) Erythromycin	3) Azithromycin	4) Telithromycin
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 (1)
- 2) Chloramphenicol is produced by

1) Streptomyces erythraeus	2) Streptomyces venezuelae	3) Mycoplasma pneumonia	4) Chlamydia pneumoniae.
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 (1)
- 3) The artemisinin series are made up of following structures

1) Dioxanes	2) 3-aryltrioxanes	3) Benzoxanes	4) Tetraoxanes
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 (1)
- 4) The replacement of carboxylic group by one of the following group produces a derivative which is 4-10 times potent than ciprofloxacin

1) Aldehyde	2) Isothiazolo	3) Thiol	4) Diazo
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 (1)
- 5) Resistance to fluoro quinolones develops due to

1) Mutation in DNA gyrase	2) Mutation in porin channels	3) Mutation in topoisomerase-I	4) Mutation in topoisomerase -II
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 (1)
- 6) One of the following isomer of Ethambutol is most active

1) Leavo isomer	2) dextro isomer	3) Meso isomer	4) racemic mixture
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 (1)
- 7) Amantadine and rimantadine are approved for prevention and treatment of

1) influenza type A virus infections	2) influenza type B virus infections	3) Herpes Simplex virus infections	4) Hepatitis A virus infections
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 (1)
- 8) 3TC is a common name of

1) Zidovudine	2) Didanosine	3) Lamivudine	4) Ribavirin
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 (1)

9) The newest of the 4-aminoquinolines marketed as the R,S-isomer is

(1)

1) Amodiaquine	2) Mefloquine	3) Chloroquine	4) Santoquine
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10) Chloramphenicol patient compliance is improved by using one of the following

(1)

1) Chloramphenicol succinate	2) Chloramphenicol hydrochloride	3) Chloramphenicol palmitate	4) Chloramphenicol sulphate
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11) Which of the following statement is not true

(1)

1) Sulbactam, a Penicillanic acid sulphone derivative, Beta lactamase inhibitor	2) Carboxypenicillins are susceptible to beta-lactamase unless combined with a beta-lactamase inhibitor	3) Azlocillin is Acylureidopenicilline with piperidine ring	4) In the Thiazolidine ring of Penicillin, Sulphur is usual but not essential for the activity as per the SAR
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12) In the structure of Tetracyclines which of the rings offers the best potential for modification in order to create new antibacterial analogues

(1)

1) Ring A	2) Ring B	3) Ring C	4) Ring D
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13) Aminoglycosides are most effective against which kind of microorganism?

(1)

1) Aerobic gram-negative bacteria	2) Anaerobic gram-negative bacteria	3) Aerobic gram-positive bacteria	4) Anaerobic gram-positive bacteria
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14) N,N-diethyl-4-methylpiperazine-1-carboxamide is

(1)

1) An anthelmintic used as citrate in the treatment of filariasis	2) An antifungal used for subcutaneous and systemic mycoses	3) Used to treat infections caused by protozoa like giardiasis and amebiasis	4) Antibiotic used in anaerobic infection.
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15) Which of the following statement not holds good for Mitroimidazole

(1)

1) A prodrug which is selective for	2) Under go reduction to give nitroso intermediates	3) Synthesised by cyclisation of Glyoxal, ammonia and	4) These can covalently bind to DNA,
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	anaerobic bacteria					formaldehyde			disrupting its helical structure
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- 16) Following drug is a metabolite of Proguanil and belongs to a class of 2,4-diaminoquinazoline DHFR inhibitor (1)

1)	Sulphonamide	2)	Cycloguanil	3)	Piritrexim	4)	Tinidazole
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- 17) Which of the following is not a sulphone antibacterial (1)

1)	Promin	2)	Solasulphone	3)	Sulphetrone	4)	Griseofulvin
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- 18) Which of the following statement is false for sulphonamide (1)

1)	Sulphonamides are selective drugs used to treat urinary tract infections	2)	Sensitive to light and incompatible with strong oxidizing agents	3)	Are structural analogues and competitive antagonists of para-amino benzoic acid	4)	Amphoteric, they generally function as weak base due to the presence of SO ₂ NH ₂ group
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- 19) Which of the following solvents is the most suitable for determining partition coefficients. Which have relevance for drug transport across biological membranes (1)

1)	Liquid paraffin	2)	Butanol	3)	Heptane	4)	Octanol
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- 20) Which of the following is analogues to Sigma constant in QSAR (1)

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

Answer all the questions.

- 1) Explain the SAR of 8-amino quinolines as antimalarials. Write the synthesis of Chloroquine naming all the intermediates and reagents used. (5+3) (10)
Write the chemistry of Macrolides and mention their uses. (2)
- 2) Classify Penicillin giving structure for each class. With an example, explain how alteration of Acylamino side chain in Pencillin G would give the compound with high stability (2+2) (10)
Write the structure of Methicillin. (1)
Write the synthesis and explain mechanism of action of Sulphacetamide (3+2)

III Short Answers

Answer all the questions.

- 1) Write the SAR and use of INH. What are scavenger resins and what is their use in solution phase synthesis of CombiChem technique.(3+2) (5)
- 2) Classify antivirals and anti-aids agents with one example under each class with its structure How can you prolong the duration of action as well as improve organ sensitivity of drugs.(3+2) (5)
- 3) Write the structure of the following compounds and mention their use: i) Gatifloxacin b) Pyrazinamide c) Primaquine d) Zidovudine e) Chloramphenicol. (5)
- 4) What is Hammett constant? Considering Benzoic acid and its derivatives explain the application of Hammett constant in understanding their biological activity. (5)
- 5) How do you classify sulphonamides based on its chemical structure? Give examples (3) Write the structure and uses of Itraconazole. (2) (5)
- 6) Write the general structural features, mechanism of action of aminoglycosides. (3) Enlist four SAR features of Ring A in Tetracycline. (2) (5)
- 7) 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)

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