BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – B.Pharm-2020/B.Pharm-2021/B.Pharm-2022/B.Pharm-2023
Course Name – Medicinal Chemistry III Theory
Course Code - BP601T
(Semester VI)

Full Marks : 75 **Time : 3:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 20=20

1. *Choose the correct alternative from the following :*

(i) Identify the correct statement of niridazole
a) Mono amine oxidase inhibitors
b) Mono acyclic oxidase inhibitors
c) Mono aldehyde oxidase inhibitors
d) None of these

(ii) Select the correct one, pyrethrum and pyrethroids come under
a) Anthelmintic agents
b) Antiviral agents
c) Antibacterial agents
d) Cardiovascular agents

(iii) Which class of antifungal drugs works by inhibiting lanosterol 14α-demethylase?
a) Imidazole
b) Polyene
c) Allylamine
d) Triazole

(iv) Strategies that increase the polarity and water solubility of a drug is
a) Replacing an aromatic ring,
b) Replacing an alkyl group,
c) Removing polar functional group,
d) Adding extra alkyl groups,

(v) Identify from the followings, which is one of the rules in Lipinski's rule of five?
a) A molecular weight equal is to 500
b) Not more than five hydrogen bond acceptor groups
c) Not more than 10 hydrogen bond donor groups
d) A calculated logP value less than +5

(vi) Select the descriptions most accurately describes binding sites and binding regions
a) a binding site is part of a binding region,
b) a binding region is part of a binding site,
c) a binding region is the same as a binding site,
d) a binding region is on a drug whereas a binding site is on a macromolecular target,

(vii) Identify the kind of interactions that are typically involved in binding a drug to the binding site of a protein.
a) predominantly van der Waals interactions,
b) predominantly ionic bonds,
c) predominantly hydrogen bonds,
d) a combination of all of the above,

(viii) The symbol π in a QSAR equation determine

a) The hydrophobicity of the molecule,
b) The electronic effect of a substituent,
c) The substituent hydrophobicity constant,
d) A measure of the steric properties for a substituent,

(ix) Select the correct option, the negative value of σ signifies that a substituent is

a) electron donating
b) electron withdrawing
c) neutral
d) hydrophobic

(x) Judge among the following is not a stage of combinatorial chemistry.

a) finding a lead compound,
b) structure-activity relationships of the lead compound,
c) optimising a lead compound,
d) structure determination of the lead compound,

(xi) The term used to describe the 3-dimensional space around a molecule when it is in a target binding site?

a) Stereochemical space,
b) Conformational space,
c) Configurational space,
d) Constitutional space,

(xii) Select the correct option, a privileged scaffold is means

a) A scaffold that is present in a wide range of drugs with different activities,
b) A scaffold that is easily synthesised.,
c) A scaffold that is patented. ,
d) A scaffold that is free of side effects.,

(xiii) Select from the following statements is not an advantage of solid phase synthesis over conventional synthesis.

a) Excess reagents can be used to force the equilibrium of a reaction to products.
b) Impurities and by products are easily removed.
c) Intermediates do not need to be isolated and purified.
d) Structures can be strongly linked to solid support such that they cannot be removed.

(xiv) Structurally erythromycin differs from clarithromycin is

a) 3 Position OH group instead of 3 position Methoxy group
b) 6 Position OH group instead of 6 position Methoxy group
c) 5 Position OH group instead of 5 position Methoxy group
d) None of these

(xv) Select the correct option, desosmaine is considered as

a) deoxy sugars.
b) oxy sugars
c) glycoside
d) dideoxy sugars

(xvi) L-DOPA is the established prodrug of

a) Dihydroxy phenyl alanine
b) Carbidopa
c) Dopamine
d) Levodopa

(xvii) The "six-member ring" present in cephalosporins, which is adjacent to the beta-lactam ring is described as

a) Dihydrothiazine ring
b) Thiazine ring
c) Imidazole ring
d) Thiazole ring

(xviii) Primaquine shows antimalarial activity by

a) generating the reactive oxygen species
b) inhibiting the heme detoxification
c) inhibiting the respiratoty chain
d) inhibiting thymidylate syntesase enzyme

(xix) Select the correct option, the inactive metabolite of proguanil is reported as

a) Cycloguanil
b) 4 chlorophenyl biguanide
c) 4 nitrophenyl biguanide
d) 4 bromo phenyl biguanide

(xx) Choose the correct option, acyclovir is selectively useful for the treatment of

a) Eye infection
b) Varicella Zoster infection
c) bacterial infection
d) Flu infecton

Group-B

(Short Answer Type Questions) 5 x 7=35

2. Describe the mechanism of action with a schematic representation of penicillin. (5)

3. Classify prodrug with suitable structural examples of each class. (5)

4. Define antibiotic and classify them. (5)
5. Describe the chemical structure, nomenclature and therapeutic applications of tetracycline. (5)

6. Explain about the mechanism of action cotrimoxazole mentioning its side effects. (5)

7. Explain the steps involved in the synthesis of dapsone. (5)

OR

Focus on classification and SAR of sulfonamides. (5)

8. Establish the structure activity relationship study of antifungal antibiotics. (5)

OR

Explain the steps involve in the synthesis of tolnaftat. (5)

Group-C

(Long Answer Type Questions) 10 x 2=20

9. Explain in detals about the mechanism of action, chemical structure with nomenclature and side effects of sulphapyridine. (10)

10. Analyze the structure activity relationship of quinoline derivatives. (10)

OR

Correlate the chemical structure and pharmacological activity of quinolones as an antiinfective agent. (10)

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