KATHMANDU UNIVERSITY
End Semester Examination
May/June, 2022

Marks Scored:

Level : B.Pharm.
Year : III
Course : PHAR 316
Semester : II

Exam Roll No. :
Time: 30 mins.
F. M. : 20

Registration No.:
Date : JUNE-07, 2022

SECTION "A"
[20Q. × 1 = 20 marks]

Encircle the most appropriate answer.

1. The antisense technology is applied to develop anticancer drugs based on
   a. Antimetabolite
   b. Alkylating agent
   c. Telomerase inhibitor
   d. None of the above

2. Aziridinium ion is a reactive component in
   a. Cyclophosphamide
   b. Fludarabine
   c. 5-FU
   d. Methotrexate

3. The acid stability of tetracycline can be enhanced by removing the hydroxyl group at
   a. C3 position b. C6 position c. C10 position d. C12 position

4. The gray baby syndrome observed in Chloramphenicol is due to
   a. contamination of L-thero isomer
   b. cnderdeveloped glucuronidation among infants
   c. acylation of its 3-OH group
   d. mutation of chloramphenicol acetyltransferase

5. Which one of the following is designed to be absorbed through peptide transporter?
   a. Valacyclovir b. Foscarnet c. Saquinavir d. Cidofovir

6. The poor bioavability due to chelation is observed in
   a. Sulfisoxazole b. Sulfasalazine c. Mefloquine d. Norfloxacin

7. Drug that is based on epimerizaton is
   a. 6-mercaptopurine
   b. Fludarabine
   c. Oblimersen
   d. Avastin

8. The opioid analgesic that was withdrawn due to structural similarity of its metabolite with MPTP is
   a. Pentazocine b. betaprodine c. Levorphanol d. oxymorphine

9. Codeine, an opioid derivative, does not have of the following properties
   a. has methoxy group at C-3
   b. should be metabolised by CYP 3A4 to see analgesic activity
   c. releases histamine at higher dose
   d. converts into morphine after o-demethylation

10. NSAID with no carboxyl acidic functional group is
    a. Mefenamic acid b. Naproxen c. Piroxicam d. None of the above

11. In antihistaminic drugs,
    a. amine group should be secondary.
    b. it should follow 5 atom rules.
    c. the two aryl moiety attached to the connecting atom should be noncoplanar.
    d. they do not show stereoselectivity.

12. Which is the **odd** one?
    a. Minoxidil b. Enalapril c. Fosinopril d. Amlodipine

13. In acetylcholine, which one of the following is **WRONG**?
    a. The presence of quaternary nitrogen induces its degradation.
    b. Its degradation can be slowed down by substituting methyl group by electron withdrawing group at acetyl part.
    c. The ester functional group is not essential.
    d. The carbonyl group is not essential.

14. The enalapril is better than captopril for the following reason except,
    a. Enalapril is a transition state analogue b. Captopril is metabolized faster
    c. Captopril gives metallic taste d. Captopril is a transition state analogue

15. Barbituric acid is inactive, because
    a. it is rapidly metabolized.
    b. it is effluxed rapidly by p-gp.
    c. it remains in highly ionized form to penetrate BBB.
    d. none of the above because it has potent sedative action.

16. A compound with its Pka value 6.9 indicates it is
    a. acidic b. basic
    c. neutral d. information provided is incomplete

17. In drug metabolism,
    a. drugs mustd undergo phase I followed by phase II.
    b. drugs are converted to non-toxic form only in phase II.
    c. phase II ends the pharmacological activity of drugs.
    d. drugs can be directly excreted after phase I.

18. The oxidation of alkene usually results in
    a. Diols b. Ketone c. Aldehyde d. Carboxylic acid

19. The drug that does not need enzyme for its metabolism is
    a. Clonidine b. Atracurium c. Amlodipine d. Midodrine

20. Amide based local anaesthetic drugs is best described by
    a. get negatively charged before acting at the receptor.
    b. less susceptible than ester based drugs to cause allergic reaction.
    c. weakly acid nature of the drug.
    d. less stable than ester based drug.

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SECTION "B"

[5Q. × 3 = 15 marks]

Attempt *ANY FIVE* questions.

1. What is the difference between termination of activity of norepinephrine by uptake 1 and uptake 2 pathways?
2. What is Hoffman elimination reaction? Why does atricurium undergo such elimination at physiological condition? [1+2]
3. What is the importance of Porin in the cell wall of bacteria in the development of antibacterial drug?
4. Why can clonidine pass through BBB?
5. Write brief note on Penem antibiotics and modification to develop resistant against DHP-1.
6. Give one example each for the increase and decrease in water solubility after esterification in drug design. [1.5+1.5]
7. Optimum log P is essential for the activity of a drug. Why?

SECTION "C"

[5Q. × 5 = 25 marks]

Attempt *ANY FIVE* questions.

8. Define Crystalluria caused by sulfonamide and modification in the structure to avoid it. [3+2]
9. Illustrate reaction cycle of CYP 450 enzyme system. Explain its preference for lipid soluble drugs. [4+1]
10. Discuss the chemistry of local anaesthetic drug.
11. Classification of cholinergic drugs. Write down the chemistry of irreversibly acting cholinesterase inhibitor. [2+3]
12. Write down the chemistry of histamine. Give classification of antihistaminic drugs. [2.5+2.5]
13. Discuss bioprecursor and mixed type prodrugs with examples.
14. Write down the SAR of Morphine.

SECTION "D"

[2Q. × 7.5 = 15 marks]

Attempt *ANY TWO* questions.

15. With examples, explain the mechanism of action of anticancer drugs that acts as antimetabolite and alkylating agent. Write a note on Antisense technology used in cancer treatment. [2.5+2.5+2.5]

16. Classify Sedative and Hypnotic drugs. Discuss in detail the SAR of Benzodiazepine. [2.5+5]

17. Discuss the role of Isosterism, Partition Coefficient, and Hydrophobic Interaction in drug development. [3+2.5+2]