KATHMANDU UNIVERSITY
End Semester Examination
February, 2025

Marks Scored:

Level : B.Pharm.
Year : III

Course : PHAR 324
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date 17 FEB 2025

SECTION "A"

[20 Q. × 1 = 20 marks]

Choose and encircle the most appropriate option from each set of choices

1. Which one of the following NSAIDs is N-Arylanthranilic Acid derivative?
   a. Ibuprofen
   b. Meclofenamic acid,
   c. Phenylbutazone
   d. Indomethacin

2. The covalent bond of aspirin is formed with _____ of COX 1
   a. Arg-120 b. Arg-106 c. Ser-530 d. Ser-22

3. The NSAIDs with noncarboxylic acid functional group is
   a. Oxicams b. Diclofenac c. Sulindac d. Indomethacin

4. One of the following is an isoquinoline derivative
   a. Thiabendazole b. Praziquantel c. Ivermectin d. Tinidazole

5. Second generation antihistaminic (H1) drugs have less sedative action at therapeutic dosage because
   a. They undergo extensive metabolism before they can enter CNS.
   b. They do not have affinity towards H1 receptor of CNS
   c. They are relatively polar at physiological pH
   d. They are not a good substrate of P-gp

6. Which one of the following antiviral drugs is an example of transition state analogue?
   a. Acyclovir b. Nevirapine c. Foscarnet d. Saquinavir

7. The reactivity of amide done in penicillin is because
   a. The carbonyl and amine do not lie in the same plane
   b. The resonance effect between carbonyl and amine
   c. The electron donating nature of substituent attached with amine
   d. The above statement is wrong as the amide in penicillin least reactive

8. Which one of the following functional group makes cephalosporin active against beta lactamse?
   a. Chloride b. Methyl c. Acetoxy d. Phenyl

9. Guanidine functional group is present in
   a. kanamycin b. neomycin c. gentamicin d. streptomycin

10. Vidarabine has anticancer activity due to
    a. Presence of epimeric D Ribose
    b. Formation of reactive acylating agent
    c. Folic acid antagonist activity
    d. Inhibition of Protease

11. Phosphorothioate is introduced to provide stability against degrading enzyme in
    a. Angiogenesis Inhibitors
    b. Asparaginase
    c. Antisense
    d. Foscarnate

12. Stabilising the G-quadriplexes is done to inhibit development of
    a. Telomer
    b. Beta lactamase
    c. Arachidonic acid
    d. None of the above

13. 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

14. In antihistaminic drugs,
    a. Amine group should be secondary
    b. It should follow 5 atom rules
    c. The two aryl moiety attached attached to the connecting atom should be noncoplanar
    d. They do not show stereoselectivity

15. Which one of the following penicillin derivative exhibit beta lactamase resistance by virtue of bulkiness in its structure
    a. Nafcillin
    b. Ampicillin
    c. Clavulanic acid
    d. Amoxicillin

16. Better absorption of Melphalan is due to
    a. High LogP value
    b. High solubility
    c. Amino acid derivative
    d. Low molecular weight

17. Antiviral drug having 3' azido functional group is
    a. Acyclovir
    b. Saquinavir
    c. Zidovudine
    d. Amantadine

18. Which one of the below is a mixture of T3 and T4?
    a. Levothyroxine
    b. Liothyronine
    c. Liotrix
    d. Dextrothyroxine

19. Which one of the following is a metabolite of Terfenadine that is used as a drug because it is considered to be safer?
    a. Loratidine
    b. Cetrizine
    c. Diphenhydramine
    d. Fexofinadine

20. Methimazole cannot inhibit peripheral deiodination of T4 because
    a. It has methyl group at N1 position
    b. It has electron withdrawing substitution at N2 poisition
    c. It is not hydrophilic enough
    d. It does not have functional group for ionic interacton

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SECTION "B"
[5 Q. × 3 = 15 marks]

Attempt ANY FIVE questions.

1. Write down the synthesis of Ibuprofen.

2. Write a note on prostaglandins.

3. What is the mechanism of action of Metronidazole? How Tinidazole is better than Metronidazole. [2+1]

4. Discuss the chemistry of Amphotericin B.

5. Justify the acidity of Sulfonamide based antibacterial agent. Write down the synthesis of Sulfathiazole. [1.5+1.5]

6. Write down the importance of Green synthesis with example of Tolbutamide synthesis.

7. Write a note on the acid stability of macrolide.

SECTION "C"
[5 Q. × 5 = 25 marks]

Attempt ANY FIVE questions.

8. Why discovery of antifungal drugs are difficult? Discuss the chemistry of Azole class of Antifungal Agents. [1+4]

9. Write down the SAR of antihistaminic drug. Based on drug receptor interaction, demonstrate the affinity of histamine with H1 and H2 receptor. [3+2]

10. Discuss the chemical stability of Insulin. How the second-generation sulfonylureas are better than first generation?

11. Write down the SAR of tetracycline. How its chemical instability can cause Fanconi like syndrome? [3.5+1.5]

12. Give chemical classification of NSAIDs. What is the structural modification needed to make a drug selective tp COX-2

13. Discuss the SAR of aminoglycoside.

14. Write a note on
    a. α-Glucosidase Inhibitors
    b. GLP-1 analogs used as anti diabetic drug

P.T.O.

SECTION "D"

[2 Q. × 7.5 = 15 marks]

Attempt ANY TWO questions.

15. Briefly discuss the nucleoside based drug used as antiviral and anticancer agent.

16. Discuss the chemistry of penicillin and their stability towards beta lactamase.

17. Discuss the chemistry and mechanism of action of following anticancer class of anticancer drugs
    a. Alkylating agents
    b. Antisense
    c. Telomerase inhibitors [2.5+2.5+2.0]