Sem VI CBSGS
Pharmaceutical chemistry - II
March 2015

QP Code : **21946**

(3 Hours) [Total Marks : 70

1. Answer the following. Question 1-11 carry one mark each and questions 12-13 carry 2 marks each
    1. Give an example (structure and name) of a drug that is lipid in nature with its therapeutic use
    2. What is the energy associated with hydrogen bonding interactions.
    3. Give one example of a post translational modification of a protein
    4. Hemoglobin is a tetramer composed of 2 alpha and 2 beta subunits. What level of protein structure does this statement imply.
    5. State in a sentence or two: What is a proteome
    6. Which enzyme kinetic parameter/s do uncompetitive inhibitors affect.
    7. Give the structure, chemical name, trivial name and brand name of one drug of your choice.
    8. Give an example of a receptor that is nuclear receptor
    9. The DNA double helix is an example of DNA primary structure. True or False. Correct if False.
    10. What is meant by antisense therapy. Write in a sentence or two.
    11. R and S terms imply geometrical isomerism. True or False. Correct if False.
    12. Give one example of a glutathione S-transferase catalyzed metabolic reaction using a drug/chemical of your choice.
    13. Nucleic acids can be drug targets. Explain the statement

2. (a) List the various intermolecular forces involved in bonding and discuss any two in detail 4

    (b) Answer the following: (any two) 4
        i. "Enzymes are the common targets of several marketed drugs"- justify this statement with suitable examples.
        ii. Give the structure and chemical name of a sulfonamide used for ophthalmic infections.
        iii. Write a short note on 'proteomics'

[TURN OVER

(c) Give the structure and generic name for the following: 3

5. i. A β-lactamase resistant penicillin
ii. A monobactam antibiotic
iii. An orally administered penicillin

3. (a) Write a short note on ion channel receptors. 4

(b) Answer in brief: 4

i. Explain the following terms.
i. Partial agonist
ii. Efficacy

6. ii. Give the structure, generic name and use for the following: 5-Amino-1-cyclopropyl-7-(3,5-dimethylpiperazin-1-yl)-6,8-difluoro-4-oxo-quinoline-3-carboxylic acid

(c) Outline the various steps involved in the synthesis of pyrimethamine 3

4. (a) Give four different types of metabolic reactions catalyzed by cytochrome P450s. 4

(b) Describe the synthesis of ampicillin OR cloxacillin 3

(c) Give reasons for the following:

i. Drugs should have good solubility for oral administration 2
ii. Lomefloxacin is phototoxic 1
iii. Give the name and structure of any one drug used to treat typanosomiasis 1

5. (a) Classify the following cephalosporins based on generation and give their structures and also suggest suitable route for administration: cephalexin, cefuroxime, ceftriaxone. 3

(b) Outline the synthesis of ethambutol along with reagents and reaction conditions. 3

(c) State whether following statements are true or false and justify 3

i. The C-9 epimer of quinine is inactive.
ii. Artemisin has a peroxide moiety that is necessary for antimalarial activity.
iii. Pyrimethamine and sulfadoxine is a synergistic combination used in treatment of malaria

(d) Give generic name, structure and therapeutic use of N, N- diethyl-4-methyl-1-piperazinecarboxamide citrate. 2

[TURN OVER

W

6. (a) Give the scheme of synthesis of clotrimazole with reagents and reaction conditions. 3

(b) Write the mechanism of action of the following (any two) 4

(i) Ketoconazole

(ii) Butenafine

(iii) INH

(c) Answer in short the following (any two) 4

(i) Structural features of macrolide antibiotics

(ii) β-lactamase inhibitors

(iii) Many commonly used antacids like magnesium hydroxide, aluminum hydroxide, eno fruit salts do not have a classic structure activity relationship among them. Why?
