SEPTEMBER 1991

406

FIRST M.Pharm. DEGREE EXAMINATION, SEPTEMBER 1991

Special Papers

Specialisation D — Pharmacology

Paper I — STRUCTURE ACTIVITY RELATIONSHIP

Time : Three hours. Maximum : 100 marks.

Answer any FOUR questions.

All questions carry equal marks.

1. "In a rational approach for new drugs *suitable molecules are designed to affect a single intrinsic basic step* in the sequence of reactions to bring about an alteration in physiological activity of the cells in a tissue" — How far is it justified ? Give examples.

2. Write briefly on any *two* of the following :

(*a*) Agonist, partial agonist and antagonist.

(*b*) Structure activity aspects of morphine.

(*c*) Alkylating agents.

3. Define PA_2 values. Give an experimental design to define quantitatively an antagonist against an agonist at a particular receptor.

4. Define in general the structure activity aspects of catecholamines and mention the moieties responsible for their activity at α and β adrenergic receptors.

5. Describe the structure-activity aspects of cardiac glycosides taking a typical cardiac glycoside for illustration.

6. Write on the aspects of drug metabolism that should be taken into consideration in designing new drug molecules.

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MARCH 1992

[4061]

M.Pharm. DEGREE EXAMINATION, MARCH 1992.

Specialisation - D

Paper II — STRUCTURE ACTIVITY RELATIONSHIP

Time : Three hours. Maximum : 100 marks

Answer any FOUR questions.

All questions carry qeual marks.

1. A drug after it is administered affects one or more of the complex of events in producing its pharmacological activity. Explain with examples.

2. Write briefly on any *two* of the following :

(a) Drug receptors, receptor reserve, up-regulation and down regulation of receptors.

(b) Structure activity aspects of local anaesthetics and sulphonamides.

(c) Dopaminergic drug.

3. How does the pH-partition theory explain absorption of drugs in gastro-intestinal tract and reabsorption of drugs in renal tubules. Give examples.

4. Explain by using a diagramatic sketch the nature of a cholinergic receptor and how acetylcholine activates it. Explain the elements in the chemical structure of methonium compounds which act as nicotinic receptor blocking agents.

5. Explain the structure activity aspects of Angiotension-II molecule.

How are antagonists of renin-angiotension system designed for treating hypertension.

6. Describe the structure activity aspects of steroidal hormones focussing the moieties responsible for oestrogenic, androgenic, andolic and anti-inflammatory activities.

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[ND 286] **NOVEMBER 1994**

M.Pharm. DEGRÉE EXAMINATION.

(New Regulations)

First Year

Branch IV — Pharmacology

DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time : Three hours Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. Write on :

   (a) Drug receptor theory of drug action.

   (b) Rational drug design.

2. Write on :

   (a) Chiral or stereo--isomeric aspects of drug design.

   (b) Prodrugs.

3. Discuss the structure activity relationship of cardiotonic drugs (cardiac glycosides).

4. Discuss the structure activity aspects of penicillins.

5. Discuss the hypothetical structure of cholinergic receptor at neuromuscular junction that is affected by neuromuscular blocking drugs. Discuss the structure activity aspects of neuromuscular blocking drugs.

6. Discuss the structure activity aspects of steroid hormones.

[SB 315] **APRIL 1995**

M.Pharm. DEGREE EXAMINATION.

First Year

(New Regulations)

Branch IV — Pharmacology

DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time : Three hours Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. Describe the different processes that affect a drug from the moment of its oral administration till it is eliminated from the body. Also describe how altered rates of these processes affect drug action.

2. Write briefly on :

(*a*) Quantitative structure activity relationship.

(*b*) Nature of drug receptors.

3. Discuss the structure activity aspects of opioid drugs.

4. Discuss the structure activity relationship of cardiac glycosides.

5. Discuss the pharmacological activities of compounds derived from phenylethylamine with reference to their chemical structure.

6. Discuss how the following factors affect the drug action :

(*a*) Partition coefficient.

(*b*) Nature and size of the drug particle.

(*c*) Motility of gastro-intestinal tract.

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[AK 316] **APRIL 1996**

M.Pharm. DEGREE EXAMINATION.

(New Regulations)

First Year

Branch IV — Pharmacology

DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time : Three hours Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. Enumerate the importance of QSAR studies in pharmacology.

2. Explain the following with suitable examples :

   (a) Rational drug therapy

   (b) Prodrugs

   (c) Role of computers in drug design.

3. Describe the SAR of barbiturates.

4. Comment on the adverse drug reactions.

5. Describe the SAR of morphine.

6. Describe the SAR of penicillins.

OCTOBER 1996

M.Pharm DEGREE EXAMINATIONS

PK 212

(New Regulations)

Branch IV - Pharmacology

Paper III

DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time: Three hours Max.marks:100

Answer any FOUR questions

All questions carry equal marks

1. What are the strategies one can adapt to get a lead compound.

2. Explain the variables that are encountered in the use of biological tissues while determining the pharmacological mechanism and activity of a novel compound.

3. Explain the following with suitable examples:

   (a) Molecular targets for drugs

   (b) Ionisation constant

   (c) Fluid mosaic model of cell membranes

4. Describe the SAR of antihistamines.

5. Describe the SAR of Xanthines and their analogues

6. Describe the SAR of anti depressants.

APRIL 1997

M.Pharm. DEGREE EXAMINATION

(New Regulations)

MP 264

First year

Branch IV - Pharmacology

Paper IV - DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time: Three hours Max. marks: 100

Answer any FOUR questions

All questions carry equal marks

1. Describe the SAR of cardiac glycosides.

2. Describe the SAR of Diuretics.

3. Describe the SAR of Aminoglycosidal antibiotics.

4. Describe the SAR of opioid analgesics.

5. Give an account of

   (a) Physical and chemical factors in drug design

   (b) Forces involved in Drug-receptor interaction

   (c) Isosterism.

6. Write notes on:

   (a) Hydrogen bonding

   (b) Antimetabolites

   (c) Chelation.

OCTOBER 1997

M.Pharm. DEGREE EXAMINATION

(New Regulations)

MS 248

First Year

Branch IV - Pharmacology

Paper IV - DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time: Three hours Max.marks:100

Answer any FOUR questions

All questions carry equal marks

1. Discuss the role of computer assisted drug design in the development of novel molecules.

2. Explain the following with suitable example:

   (a) Chirality

   (b) Hill coefficient

   (c) Physico-chemical characterisation of a novel molecule.

3. Describe the approach to design an antimetabolite.

4. Describe the SAR of Corticosteroids.

5. Describe the SAR of anticonvulsants.

6. Comment on postmarketing surveillance for untoward reactions to drugs.

[SV 280] **APRIL 1998**

M. Pharm. DEGREE EXAMINATION.

(New Regulations)

First Year

Branch IV — Pharmacology

Paper IV — DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time : Three hours Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. Describe the SAR of Antiepileptic drugs.
2. Describe the SAR of anti inflammatory agents.
3. Describe the SAR of Beta–lactam antibiotics.
4. Describe the SAR of antineoplastic agents.
5. Give an account of
   (a) Rational drug design.
   (b) Solubility and Partition Coefficients.
   (c) Computer assisted drug design.
6. Write notes on :
   (a) Drug–Receptor interaction.
   (b) Prodrug concepts.
   (c) Structural factors in drug design.

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[KA 280] **OCTOBER 1999**

M.Pharm. DEGREE EXAMINATION.

First Year

Branch IV — Pharmacology

Paper IV — DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time : Three hours Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. Explain about different forces in drug–receptor interaction.

2. Discuss the SAR of phenothiazines.

3. Explain about the rational design of covalent binding enzyme inhibitors.

4. Write notes on :

(a) Solubility and partition coefficient in biological activity of drugs.

(b) Free Wilson analysis.

5. Discuss the SAR of cardiac glycosides.

6. Write about the selected physico–chemical properties in relation to biological activity.

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APRIL 2000

[KB 280]

M. Pharm. DEGREE EXAMINATION.

(New Regulations)

First Year

Branch IV — Pharmacology

Paper IV — DRUG DESIGN AND STRUCTURE ACTIVITY RELATIONSHIP

Time : Three hours APR 2000 Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. Describe drug–receptor interactions.

2. Write notes on :

   (a) Chemical factors in drug design

   (b) Quantitative structure activity relationship.

3. Describe the structure activity relationship of opioid analgesics.

4. Describe various physicochemical properties that affect biological actions of drugs.

5. Describe the metabolic aspects to be considered in the design of prodrugs.

6. Write an account of :

   (a) SAR of sulphanilamides

   (b) Principles of computer assisted drug design.

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OCTOBER 2000

[KC 280]

M.Pharm. DEGREE EXAMINATION.

First Year

Branch IV — Pharmacology

Paper IV — DRUG DESIGN AND STRUCTURE AND ACTIVITY RELATIONSHIP

Time : Three hours Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. Explain about the rational design of non–covalent binding enzyme inhibitors.

2. Discuss the SAR of Aminoglycoside antibiotics.

3. Explain about drug–receptor interactions.

4. Write notes on :

   (a) Regression analysis.

   (b) Oxidation–reduction potentials and biological activity.

   (c) Prodrug concepts

   (d) Computer assisted drug design.

5. Discuss the SAR of Antiarrhythmic drugs.

6. (a) Establish the relationship between Hansch and Free Wilson analysis (Mixed approach).

   (b) Give the SAR of Benzodiazepines.

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