

## B.Pharm IV Year I Semester (R15) Supplementary Examinations January 2023

**MEDICINAL CHEMISTRY - II**

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Write the structure and use of spironolactone.
  - Explain the mode of action of loop diuretics.
  - Write the structure of prazosin and name different heterocyclic ring.
  - Classify antiarrhythmic drugs.
  - Give one example with one structure each of 1<sup>st</sup> and 2<sup>nd</sup> generation sulfonylurea as antihyperglycemics.
  - Give examples of two coumarin derivatives as anticoagulants with proper structures.
  - What are the basic differences of analgesic, antipyretic and anti-inflammatory drugs?
  - Write a note on various uses of aspirin.
  - Write the names of the metabolic products of penicillin with structures.
  - Write the names of one 3<sup>rd</sup> and 4<sup>th</sup> generation cephalosporins with structures.

**PART – B**

(Answer all the questions: 05 X 10 = 50 Marks)

- Write an account on Renin-Angiotensin system in context of hypertension.
  - Outline the synthesis of the following: (i) Losartan (ii) Captopril.

**OR**
- Discuss the SAR of thiazide diuretics.
  - Outline the synthesis of the following: (i) Furosemide (ii) Ethacrynic acid.
- Classify antihypertensives. Discuss the mechanism of action of Ca<sup>2+</sup> channel blockers.
  - Outline the synthesis of the following: (i) Amlodipine (ii) Mexiletine.

**OR**
- Discuss the mechanisms of atherosclerosis formation.
  - Explain the SAR of  $\beta$ -blockers.
- Discuss the mechanisms of blood coagulation.
  - Outline the synthesis of the following: (i) Warfarin sodium (ii) Clopidogrel.

**OR**
- Write an account on the mechanisms of actions of biguanides.
  - Outline the synthesis of the following: (i) Metformin (ii) Tolbutamide.
- What is inflammation? Write an account on metabolism pathways or arachidonic acid.
  - Outline the synthesis of the following: (i) Diclofenac (ii) Sulindac.

**OR**
- Classify antiinflammatory agents. Discuss the SAR of aryl propionic acids.
  - Outline the synthesis of the following: (i) Tramadol (ii) Allopurinol.
- Discuss the SAR of tetracyclines.
  - Write an account on  $\beta$ -lactamase inhibitors and their mechanisms of action.

**OR**
- Discuss the SAR of aminoglycoside antibiotics.
  - Outline the synthesis of the following: (i) Cephalixin (ii) Ampicillin.

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**PART – A**

(Compulsory Question)

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  - Explain the mode of action of loop diuretics.
  - Write the structure of prazosin and name different heterocyclic ring.
  - Classify antiarrhythmic drugs.
  - Give one example with one structure each of 1<sup>st</sup> and 2<sup>nd</sup> generation sulfonylurea as antihyperglycemics.
  - Give examples of two coumarin derivatives as anticoagulants with proper structures.
  - What are the basic differences of analgesic, antipyretic and anti-inflammatory drugs?
  - Write a note on various uses of aspirin.
  - Write the names of the metabolic products of penicillin with structures.
  - Write the names of one 3<sup>rd</sup> and 4<sup>th</sup> generation cephalosporins with structures.

**PART – B**

(Answer all the questions: 05 X 10 = 50 Marks)

- 2 (a) Write an account on Renin-Angiotensin system in context of hypertension.  
(b) Outline the synthesis of the following: (i) Losartan (ii) Captopril.  
**OR**
- 3 (a) Discuss the SAR of thiazide diuretics.  
(b) Outline the synthesis of the following: (i) Furosemide (ii) Ethacrynic acid.
- 4 (a) Classify antihypertensives. Discuss the mechanism of action of Ca<sup>2+</sup> channel blockers.  
(b) Outline the synthesis of the following: (i) Amlodipine (ii) Mexiletine.  
**OR**
- 5 (a) Discuss the mechanisms of atherosclerosis formation.  
(b) Explain the SAR of  $\beta$ -blockers.
- 6 (a) Discuss the mechanisms of blood coagulation.  
(b) Outline the synthesis of the following: (i) Warfarin sodium (ii) Clopidogrel.  
**OR**
- 7 (a) Write an account on the mechanisms of actions of biguanides.  
(b) Outline the synthesis of the following: (i) Metformin (ii) Tolbutamide.
- 8 (a) What is inflammation? Write an account on metabolism pathways or arachidonic acid.  
(b) Outline the synthesis of the following: (i) Diclofenac (ii) Sulindac.  
**OR**
- 9 (a) Classify antiinflammatory agents. Discuss the SAR of aryl propionic acids.  
(b) Outline the synthesis of the following: (i) Tramadol (ii) Allopurinol.
- 10 (a) Discuss the SAR of tetracyclines.  
(b) Write an account on  $\beta$ -lactamase inhibitors and their mechanisms of action.  
**OR**
- 11 (a) Discuss the SAR of aminoglycoside antibiotics.  
(b) Outline the synthesis of the following: (i) Cephalexin (ii) Ampicillin.

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**MEDICINAL CHEMISTRY – II**

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Write the structure and uses of Ethacrynic acid.
  - Give the structure and uses of Enalapril.
  - Sketch the synthesis of isosorbide dinitrate.
  - Write the structure and uses of quinidine.
  - Draw the structure and uses of warfarin sodium.
  - Write the synthesis of tolbutamide.
  - How does NSAIDS show their anti-inflammatory action? Explain.
  - Give the structure and uses of paracetamol.
  - Write the structure and uses of chloramphenicol.
  - How do macrolide antibiotics show their antimicrobial action? Write their mode of action.

**PART – B**

(Answer all the questions: 05 X 10 = 50 Marks)

- 2 Classify drugs that target renin-angiotensin system. Draw the structures of any two ACE inhibitors and sketch the synthesis of losartan.
- OR**
- 3 What are diuretics? Write the SAR of thiazide diuretics and outline the synthesis of hydrochlorothiazide.
- 4 (a) Define antianginal drugs. Write the structures and uses of nitroglycerin and verapamil.  
(b) Classify antiarrhythmic agents and write the structures and specific uses of at least four antiarrhythmic drugs.
- OR**
- 5 What are the uses of different beta-blockers in the treatment of cardiovascular disorders? Write the SAR beta-blockers and structures of any two beta-blockers.
- 6 (a) Write the structures and uses of levothyroxine and liothyronine.  
(b) What are anticoagulants? Explain the MOA, uses and structures of selected anticoagulant drugs.
- OR**
- 7 (a) Write the structure, MOA, synthesis and uses of metformin.  
(b) Draw the structures glipizide, pioglitazone and miglitol and add a note on their uses.
- 8 (a) Differentiate analgesics, antipyretics and anti-inflammatory agents. Write the structure and synthesis of sulindac.  
(b) Explain the mechanism of action of opioid analgesics. Draw the structures of morphine and meperidine and add a note on their uses.
- OR**
- 9 (a) Discuss the SAR of Arylpropionic acid NSAIDS.  
(b) Outline the synthesis and uses of allopurinol.
- 10 (a) What are broad spectrum antibiotics? Give examples and write the synthesis and uses of cephalexin.  
(b) Write the SAR of penicillins.
- OR**
- 11 (a) Draw the structures of ampicillin, penicillin-G and clavulanate potassium and add a note on their uses.  
(b) Explain the SAR of aminoglycoside antibiotics.

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B.Pharm IV Year I Semester (R15) Regular & Supplementary Examinations February 2022  
**MEDICINAL CHEMISTRY – II**

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Write the structure and uses of furosemide.
  - Write the structure and uses of acetazolamide.
  - Sketch the synthesis of nitroglycerin.
  - Write the structure and uses of lidocaine.
  - Classify antidiabetic agents.
  - Write the synthesis of metformin.
  - Outline the biosynthesis of prostaglandins.
  - Write the structure and uses of aspirin.
  - Draw the general structures of penicillins and cephalosporins.
  - How do tetracyclines show their antimicrobial action? Write their mode of action.

**PART – B**  
(Answer all the questions: 05 X 10 = 50 Marks)

- 2 Define antihypertensive agents. What are the general chemical features seen with ACE inhibitors? Outline the synthesis of captopril.
- OR**
- 3 What are the uses of diuretics? Write the SAR of carbonic anhydrase inhibitors and outline the synthesis of hydrochlorothiazide.
- 4 (a) Write the structures and uses of isosorbide dinitrate and amlodipine.  
(b) Classify antihypertensive agents and write the structures and specific uses of at least 04 antihypertensive drugs.
- OR**
- 5 Define antihyperlipidemic agents. Write the SAR and uses of HMG CoA reductase inhibitors.
- 6 (a) Write the structures and uses of propylthiouracil.  
(b) What are anticoagulants? Outline the synthesis of warfarin and add a note on its therapeutic uses and limitations.
- OR**
- 7 (a) Discuss about thyroid and antithyroid agents.  
(b) Draw the structure of tolbutamide and explain its mechanism of action, side effects and medicinal uses.
- 8 (a) Differentiate opioid and non-opioid analgesics. Write the structure and synthesis of meperidine.  
(b) Explain the mechanism of action of NSAIDs. Draw the structures of ibuprofen and mefenamic acid.
- OR**
- 9 (a) Discuss the SAR of salicylates.  
(b) Discuss the SAR of aryl propionic acid NSAIDs.
- 10 (a) What are broad spectrum penicillins? Give examples & write the synthesis and uses of ampicillin.  
(b) Write the SAR of penicillins.
- OR**
- 11 (a) Draw the structures of tetracycline and doxycycline and add a note on their uses and limitations.  
(b) Explain the SAR of tetracyclines.

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B.Pharm IV Year I Semester (R15) Supplementary Examinations August 2021  
**MEDICINAL CHEMISTRY – II**

Time: 3 hours

Max. Marks: 70

**PART – A**  
 (Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Give a brief mechanism of Carbonic anhydrase inhibitors.
  - Draw the structure of Furosemide and its IUPAC nomenclature.
  - Write the mechanism of action of Ion channel blockers.
  - Write the structure of aspirin and its IUPAC nomenclature.
  - Write the structure and uses of Dicumerol.
  - Write the structure and uses of L-Thyroxine.
  - What are prostaglandins?
  - What is condition called gout?
  - What do you mean by the term  $\beta$ -Lactam?
  - Write the structure of doxycycline.

**PART – B**  
 (Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) Briefly describe the Renin-Angiotensin system.  
 (b) Outline the synthesis of captopril.

OR

- 3 (a) Describe the SAR of Benzothiazide diuretics.  
 (b) Describe the synthesis of Hydrochlorthiazide.

**UNIT – II**

- 4 (a) Give the chemical classification with structures of vasodilators and ant-anginals.  
 (b) Give the synthesis of nitro-glycerine.

OR

- 5 (a) Describe in detail the SAR of  $\beta$ -blockers.  
 (b) Why are  $\beta$ -blockers not the choice of drugs in asthmatics who have BP?

**UNIT – III**

- 6 Write the synthesis and mechanism of action of: (i) Tolbutamide. (ii) Metformin.

OR

- 7 (a) Write a note of the biosynthesis of the thyroxine hormone in the body.  
 (b) Outline the points in the pathway where anti-thyroid drugs act.

**UNIT – IV**

- 8 (a) Describe the biochemical pathway of inflammation in the body.  
 (b) What are NSAIDs and give structures of two of them & their mechanism of action?

OR

- 9 Write the synthesis of: (i) Sulindac. (ii) Paracetamol and their mechanism of action.

**UNIT – V**

- 10 What are macrolide antibiotics and their mechanism of action? Give the structures of any two macrolide antibiotics.

OR

- Write in detail about the SAR of aminoglycosides.

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Code: 13R00704

R13

B.Pharm IV Year I Semester (R13) Supplementary Examinations October 2020  
MEDICINAL CHEMISTRY – III

Time: 3 hours

Max. Marks: 70

PART – A  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Give the Mechanism of action of H<sub>2</sub> blockers.
  - Write structure of Omeprazole and use.
  - Write mechanism of action of Fluoroquinolones.
  - What is the structure and mechanism of action of ketoconazoles?
  - What are aminoacridine antimalarials?
  - Write structure and mechanism of action of Metronidazole.
  - Give two examples of antimetabolite anticancer agents.
  - Give the structure of idoxuridine.
  - What is meant by structure based drug design?
  - Write effect of geometric isomerism on drug action.

PART – B  
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Write in detail about SAR of H<sub>1</sub> blockers.
- OR
- 3 (a) Give the detailed mechanism of action of Proton pump inhibitors.  
(b) Write the synthesis of Omeprazole.

UNIT – II

- 4 (a) What is the SAR of Sulfa drugs?  
(b) Give the synthesis of any one sulfa drug.

OR

- 5 Write the synthesis of: (i) Nitrofurantoin. (ii) Miconazole.

UNIT – III

- 6 Give the life cycle of the malarial points and potential targets for anti-malarials.

OR

- 7 Write a detailed SAR of Anthelmintic Azoles & synthesis of Tinidazole.

UNIT – IV

- 8 Explain synthesis and mechanism of action of: (i) Acyclovir. (ii) Zidovudine.

OR

- 9 Write a detailed note on the chemistry of anticancer antibiotics.

UNIT – V

- 10 Write about the basic concepts of drug design & discovery.

OR

- 11 Explain the concepts of Lead molecule & pharmacophore.

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Code: 15R00704

R15

B.Pharm IV Year I Semester (R15) Regular & Supplementary Examinations February/March 2021  
**MEDICINAL CHEMISTRY – II**

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- What do you mean by loop diuretics?
  - Give the structure of ethacrynic acid and its IUPAC nomenclature.
  - What are anti-thrombotic agents?
  - Write the structure and uses of amiodarone.
  - Write the structure and uses of tolazamide.
  - Write the mechanism of action of propylthiouracil.
  - Explain the term uricosuric drugs. Give an example.
  - Write the structure and uses of mefenamic acid.
  - What is antibiotic resistance? Give an example.
  - Give the structure of a  $\beta$ -lactamase inhibitor.

**PART – B**  
(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) Write a detailed note on SAR of loop diuretics.  
(b) Outline the synthesis of furosemide.

OR

- 3 Outline the synthesis, mechanism of action and uses of: (i) Enalapril. (ii) Losartan.

**UNIT – II**

- 4 (a) Outline the process of blood coagulation in the body and the ways by which anti-thrombotic agents act.  
(b) Write the synthesis of clopidogrel.

OR

- 5 Write a detailed chemical classification with structures of anti-hypertensives.

**UNIT – III**

- 6 What is type-II diabetes and what is the detailed chemical classification of the drugs used in treating this condition? Give structures for each class.

OR

- 7 Write the synthesis and mechanism of action of: (i) Warfarin sodium. (ii) Metformin.

**UNIT – IV**

- 8 Write in detail the SAR of morphine and its derivatives.

OR

- 9 What do you mean by the term NSAID drugs? Write the synthesis of any two of them.

**UNIT – V**

- 10 Write a note on cephalosporins, SAR and write the synthesis of cephalixin.

OR

- 11 (a) Write the structure of chloramphenicol and its mechanism of action.  
(b) Write the SAR of Tetracyclines.

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B.Pharm IV Year I Semester (R15) Supplementary Examinations October 2020

**MEDICINAL CHEMISTRY – II**

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Write the structure and uses of captopril?
  - Write the mode of action of carbonic anhydrase inhibitors?
  - Write the structure and uses of Procainamide?
  - Write the mode of action of Antithrombotic agents?
  - Write the structures and uses of Pioglitazone?
  - Write the mode of action and uses of Propylthiouracil?
  - Write a note on prostaglandins?
  - Write the structure and uses of Ibuprofen?
  - Write the structure and uses of Amoxicillin?
  - Write a note on  $\beta$ -lactamase inhibitors?

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) Write the synthesis and uses of Enalapril and Furosemide?  
(b) Write the classification of diuretics?

OR

- 3 (a) Write the synthesis and uses of Losartan?  
(b) Write the SAR and mode of action of Thiazides?

**UNIT – II**

- 4 (a) Write the synthesis and uses of the following: (i) Amlodipine. (ii) Clopidogrel.  
(b) Write the classification of antianginal agents?

OR

- 5 (a) Write the classification of Antihyperlipidemic agents? Write the synthesis of Procainamide?  
(b) Write the classification of Antihypertensive agents with structures?

**UNIT – III**

- 6 (a) Write the synthesis and uses of the following: (i) Tolbutamide. (ii) Metformin.  
(b) Write a note on thyroid drugs?

OR

- 7 (a) Write the classification of Hypoglycemic agents?  
(b) Write in detail about Anticoagulants?

**UNIT – IV**

- 8 (a) Write the synthesis and uses of Meperidine?  
(b) Write the synthesis and uses of: (i) Diclofenac. (ii) Paracetamol.

OR

- 9 (a) Explain in detail about Antimigraine drugs with examples?  
(b) Write the SAR of Arylpropionic acids?

**UNIT – V**

- 10 (a) Write the synthesis and uses of Ampicillin?  
(b) Write the SAR of Penicillins?

OR

- 11 (a) Write the structure and therapeutic uses of following drugs: (i) Gentamicin. (ii) Azithromycin.  
(b) Write a short note on Macrolides?

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