ADICHUNCHANAGIRI UNIVERSITY

M.Pharm II Semester Examination – October 2020

TIME: 2 Hours **MAX.MARKS: 40**

SUB: Advanced Organic Chemistry II

QP CODE: 41202

Specific Instructions

1. Answer One Question from **Long Essay** (Each question carries 10 Marks).
2. Answer Six Questions from **Short Essay** (Each question carries 5 Marks).
3. Write the Question followed by Answer.
4. Write the same question numbers as they appear in this question paper.
5. Your answer should be specific to the questions asked.
6. Draw neat labelled diagrams wherever necessary.

Long Essay: Answer **any One** **1X10=10**

1. Discuss in detail the mechanism and effects of solvents in microwave assisted synthesis in organic reactions and heterocycle synthesis
2. Write the mechanism and types of pericyclic reactions with relevant examples

Short Essay: Answer **any Six** **6X5=30**

3. What is Phase transfer catalysis? Add a note on its pharmaceutical applications.
4. Write a short note on principles of green chemistry.
5. Write a note on various solid supports and linkers used in peptide synthesis.
6. Explain the working principle and synthetic applications of continuous flow reactors.
7. Write a note on enzyme catalysed reactions in the manufacture of drugs.
8. Write a note on stereo selective synthesis with examples.
9. Write a note on side reactions in peptide synthesis.
10. Define the terms photo oxidation and photo fragmentation with examples.

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ADICHUNCHANAGIRI UNIVERSITY

M.Pharm II Semester Examination – October 2020

TIME: 2 Hours **MAX.MARKS: 40**

SUB: Advanced Spectral Analysis

QP CODE: 41201

Specific Instructions

1. Answer One Question from **Long Essay** (Each question carries 10 Marks).
2. Answer Six Questions from **Short Essay** (Each question carries 5 Marks).
3. Write the Question followed by Answer.
4. Write the same question numbers as they appear in this question paper.
5. Your answer should be specific to the questions asked.
6. Draw neat labelled diagrams wherever necessary.

Long Essay: Answer **any One** **1X10=10**

1. Explain the principle, instrumentation and applications of Super Critical Fluid Chromatography

2. Explain the instrumentation and applications of Ion Exclusion Chromatography and High-Performance Thin Layer Chromatography.

Short Essay: Answer **any Six** **6X5=30**

3. Give the IR absorption bands of carbonyl groups of following i) Acetic acid ii) Acetaldehyde iii) acetyl methyl ketone iv) Ethyl acetate

4. Explain the importance of isotopic peaks in structural elucidation

5. Given an account on Ring rule in structural elucidation of organic compounds

6. Write a note on Mc Lafferty rearrangement

7. Explain the principle and method in the assay of insulin by radioimmune assay

8. Give an account on instrumentation and applications of Differential Scanning Calorimetry (DSC)

9. Write a note on application of Incredible Natural Abundance Double Quantum Transfer Experiment (INADEQUATE) in structural elucidation of organic compounds.

10. Explain the principles and applications of Enzyme linked immunosorbent assay (ELISA)

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ADICHUNCHANAGIRI UNIVERSITY

M.Pharm II Semester Examination – October 2020

TIME: 2 Hours **MAX.MARKS: 40**

SUB: Computer Aided Drug Design

QP CODE: 41203

Specific Instructions

1. Answer One Question from **Long Essay** (Each question carries 10 Marks).
2. Answer Six Questions from **Short Essay** (Each question carries 5 Marks).
3. Write the Question followed by Answer.
4. Write the same question numbers as they appear in this question paper.
5. Your answer should be specific to the questions asked.
6. Draw neat labelled diagrams wherever necessary.

Long Essay: Answer **any One** **1X10=10**

1. Explain the pharmacophore based and structure based in-silico virtual screening protocols.
2. Discuss the fragment based drug design and homology modeling.

Short Essay: Answer **any Six** **6X5=30**

3. Discuss the different types of drug receptor interactions
4. Write a note on receptor/enzyme interaction and receptor/enzyme cavity size prediction
5. Discuss the different approaches of 3D qsar.
6. What are the various statistical methods adopted for the qsar analysis?
7. Explain in brief Hammett equation and sigma parameters.
8. Enumerate the different methods in the calculation of partition co-efficient.
9. Discuss the free Wilson analysis and give its applications.
10. How do you identify features of pharmacophore?

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ADICHUNCHANAGIRI UNIVERSITY

M.Pharm II Semester Examination – October 2020

TIME: 2 Hours **MAX.MARKS: 40**

SUB: Pharmaceutical Process Chemistry

QP CODE: 41204

Specific Instructions

1. Answer One Question from **Long Essay** (Each question carries 10 Marks).
2. Answer Six Questions from **Short Essay** (Each question carries 5 Marks).
3. Write the Question followed by Answer.
4. Write the same question numbers as they appear in this question paper.
5. Your answer should be specific to the questions asked.
6. Draw neat labelled diagrams wherever necessary.

Long Essay: Answer **any One** **1X10=10**

1. Define and classify extraction process? Explain in detail about counter current extraction.
2. a) Explain kinetics and mechanism of aromatic nitration.

   b) Discuss in brief about liquid phase oxidation with oxidizing agents.

Short Essay: Answer **any Six** **6X5=30**

3. Discuss the significance of validation of large scale process.
4. Explain theory of filtration and discuss centrifugal filtration.
5. Define and discuss the significance of steam distillation.
6. Explain in detail about industrial halogenation process.
7. Write the production of streptomycin by fermentation method.
8. Give in detail about the families of reagents useful for scale-up process.
9. Write a note on hazards labels of chemicals.
10. Discuss the management of effluents treatment.

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ADICHUNCHANAGIRI UNIVERSITY

M.Pharmacy II Semester Examination – December 2021

TIME: 3 HOURS **MAX.MARKS: 75 MARKS**

Sub: Advanced Spectral Analysis

Q P Code: - 41201

INSTRUCTIONS: 1. Your answer should be specific to the questions asked.
2. Write legibly.
3. Write the same question numbers as they appear in this question paper.
4. Draw neat labelled diagrams wherever necessary.

Long essay (answer **any three**) **3X10=30**

1 Discuss the principle, instrumentation and applications of Raman Spectroscopy

2 Write the principle, instrumentation and applications of HPTLC.

3 Outline the general mass fragmentation rules of alkane, alcohol, amine and carbonyl groups.

4 Explain Woodward-fiesure rules to predict the UV absorption for dienes, homo and heteroannular systems by quoting suitable examples.

Short essays (answer **any nine**) **9X5=45**

5 Explain in detail the significance of Mc-Lafferty rearrangement.

6 Describe the principle and applications of Ion-Exclusion chromatography.

7 Briefly write a note on Radio immuno assay of digitalis.

8 Describe the principle and applications of DSC.

9 Write the principle and applications of ELISA assay with examples.

10 Outline the theory of HECTOR.

11 Explain the principle of ATR-IR.

12 Discuss the significance of meta-stable ion peaks and isotopic peaks in mass spectra.

13 Give the major applications of 2-D NMR in pharmaceutical sciences.

14 Explain the light sources and sample introduction system of GC-AAS.

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ADICHUNCHANAGIRI UNIVERSITY

M.Pharmacy II Semester Examination – December 2021

TIME: 3 HOURS **MAX.MARKS: 75 MARKS**

Sub: Advanced Organic Chemistry II

Q P Code: - 41202

INSTRUCTIONS: 1. Your answer should be specific to the questions asked.
2. Write legibly.
3. Write the same question numbers as they appear in this question paper.
4. Draw neat labelled diagrams wherever necessary.

Long essay (answer **any three**) **3X10=30**

1 Explain principle and applications of phase transfer catalysis with examples.

2 What is ultrasound assisted reaction? Discuss different types of sonochemical reactions withtheir applications.

3 What is racemic modification? Discuss the different methods of resolution of racemic mixtures.

4 Describe the various strategies employed for solution phase peptide synthesis.

Short essays (answer **any nine**) **9X5=45**

5 What are electrocyclic reactions? Explain the mechanism of Diels Alder reaction.

6 Explain enantiopure separation and stereo selective synthesis with examples.

7 Explain the super heating effects of microwave assisted reactions.

8 Explain in details about various solid supports and linkers.

9 Explain about the chiral pool and the asymmetric drug synthesis techniques.

10 What is Biocatalysis? Discuss its applications in organic synthesis with examples.

11 Write a note on photo oxidation and photo addition reactions.

12 Explain Chan, Ingold, Prelog (CIP) sequence rule.

13 Discuss briefly about side reactions in peptide synthesis.

14 What is Zeigler-Natta catalyst? Describe its benefits and applications.

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ADICHUNCHANAGIRI UNIVERSITY

M.Pharmacy II Semester Examination – December 2021

TIME: 3 HOURS **MAX.MARKS: 75 MARKS**

Sub: Computer Aided Drug Design

Q P Code: - 41203

INSTRUCTIONS: 1. Your answer should be specific to the questions asked.
2. Write legibly.
3. Write the same question numbers as they appear in this question paper.
4. Draw neat labelled diagrams wherever necessary.

Long essay (answer **any three**) **3X10=30**

1 Explain different experimental and theoretical approaches for the determination of physicochemical parameters.

2 Explain the pharmacophore based and structure based In-silico virtual screening protocols.

3 Explain different energy minimization methods and compare global minimum conformation and bioactive conformation.

4 Discuss the various approaches of 3D-QSAR analysis along with their applications.

Short essays (answer **any nine**) **9X5=45**

5 Explain how ADMET properties are predicted for new molecules.

6 Discuss the different types of drug receptor interactions.

7 Discuss the Free Wilson analysis and give its applications.

8 Explain the role of molecular modeling in drug design.

9 Explain Hammett equation and electronic parameters and how they are determined

10 Explain the statistical methods used in QSAR analysis.

11 Define molecular docking and discuss the different methods of molecular docking.

12 Enlist various methods used for calculation of Log P. Explain any two methods.

13 Explain the docking of agents on DHFR enzyme.

14 Discuss the methods of homology modeling of a protein.

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ADICHUNCHANAGIRI UNIVERSITY

M.Pharmacy II Semester Examination – December 2021

TIME: 3 HOURS **MAX.MARKS: 75 MARKS**

Sub: Pharmaceutical Process Chemistry

Q P Code: - 41204

INSTRUCTIONS: 1. Your answer should be specific to the questions asked.
2. Write legibly.
3. Write the same question numbers as they appear in this question paper.
4. Draw neat labelled diagrams wherever necessary.

Long essay (answer **any three**) **3X10=30**

1 Explain in detail about the impurities in Active Pharmaceutical Ingredients, types and their sources including genotoxic impurities.

2 Define evaporation? Enlist various types of evaporators. Discuss various factors affecting evaporation.

3 a) Discuss about reduction by heterogeneous catalyst.
b) Explain briefly about the procedure for the production of Lovastatin.

4 a) Write a note on catalytic halogenations with example.
b) Give the kinetics and mechanism of aromatic nitration.

Short essays (answer **any nine**) **9X5=45**

5 Discuss the significance of validation of large scale process.

6 Define Filtration? Write a note on centrifugal filtration.

7 Define nucleation? Write a note on factors affecting nucleation.

8 Discuss the significance of H_2O_2 as non-metallic oxidizing agent.

9 Write a note on characteristics of cost-effective routes.

10 Discuss about Aerobic and anaerobic fermentation.

11 Write a note on hazards labels of chemicals.

12 What are effluents? How are they managed in pharmaceutical industry?

13 Discuss about the occupational health and safety assessment series (OHSAS 1800).

14 Write a note on Fire hazards and types of fire extinguishers.

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