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Exam Date & Time: 27-Nov-2019 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

Advanced Organic Chemistry I [PCH-MPC102T - S2]

Marks: 75 **Duration: 180 mins.**

SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

1) Discuss with an example the mechanism involved in the following reactions. (10)
a) Birch reduction b) Wolf-Kishner reduction

2) Give the properties, applications and safety precautions in handling Lithium aluminium hydride and NBS. (10)

3) a) Explain the methods of generation and synthetic applications of carbanions. (10)
b) Explain the various methods for protection of hydroxyl group.

4) Explain with mechanism, electrophilic and nucleophilic substitution reactions of pyridine. (10)

5) a) What are carbenes? Explain the methods of their formation and applications. (10)
b) Give the synthetic applications of DMAP and Lawesson's reagent.

SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

6) Give any one method of synthesis and any one reaction each for the following heterocycles (5)
a) quinoline b) pyrones

7) What are synthons? Explain the retrosynthesis of Ethambutol. (5)

8) Define and differentiate, with an example, between Suzuki and Heck reactions. (5)

9) Explain the principle of retrosynthesis. (5)

10) Give the structures for the following IUPAC names. (5)
a) benzo[c]thiophene b) pyrano[2,3-c]pyrrole
c) thiino[3,2-b]pyran d) oxazo[3,2-a]azepine
e) pyrralo[3,2-d]isoxazole

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ıe: 29-Nov-2019 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

Advanced Medicinal Chemistry [PCH-MPC103T - S3]

Marks: 75 **Duration: 180 mins.**

SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

1) What are peptidomimetics? Explain the piptidomimetic drug design by incorporation of conformational constrains (10)

2) Classify prodrugs and give the applications of prodrugs. Discuss the method of evaluation of prodrugs. (10)

3) What are the different ways of carrying out HTS ? Explain any one method. (5)

A)

B) Write a short note on Parallel synthesis. (5)

4) List out the different procedures in designing of analogue. Explain any three such procedures with examples. (10)

5) With suitable examples, explain a) selective optimization of side effects b) screening natural products as approaches for lead drug identification. (5)

A)

B) Explain Michaelis-Menton equation and Lineweaver-Burk plot (5)

SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

6) Write a note on chirality and biological activity (5)

7) Explain the Induced-Fit Theory of Drug-Receptor Interactions with example, mentioning the advantages and disadvantages (5)

8) With examples, explain the mechanism involved in covalent bond formation. (5)

9) Explain Michaelis-Menton equation and Lineweaver-Burk plot (5)

10) Define and classify receptors

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Exam Date & Time: 02-Dec-2019 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

Chemistry of Natural Products [PCH-MPC104T - S3]

Marks: 75 **Duration: 180 mins.**

SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

1) Discuss the following with suitable examples a)site directed mutagenesis b) hybridoma technology c) rDNA technology (10)

2) Discuss the chemistry of cocaine and dicoumarol (10)

3) Classify gonadal hormones with examples and discuss the chemistry and important salient structural features of progesterone and estradiol. (10)

4) Classify terpenoids with examples and write the total synthesis of mono and di terpenoids. (10)

5) Explain the structural elucidation of morphine. (10)

SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

6) Give the general structural elucidation of flavonoids. (5)

7) How do you develop the semisynthetic analogues of cephalosporin and erythromycin? (5)

8) How marine products have been exploited as therapeutics? Explain in context with the development of Lovastatin. (5)

9) What are ecosonoids? Classify them and mention their relevance in drug discovery. (5)

10) Discuss isomerase, nitrolase, protease and hydrolase used in organic synthesis. (5)

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Exam Date & Time: 30-Dec-2019 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

Advanced Organic Chemistry I [PCH-MPC102T]

Marks: 75 **Duration: 180 mins.**

SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

1) Name few palladium catalyzed reactions. What are the advantages of palladium over other transition metals? Discuss with an example the mechanism involved in Heck reaction. (10)

2) Explain the properties and synthetic applications safety precautions in handling oxalyl chloride and NBS. (10)

3) a) Explain the strategies in synthetic planning.
b) What are nitrenes? Explain the methods of their formation and their applications (10)

4) a) Explain with mechanism, any two methods of preparation of Pyridine. 7 marks
b) Give the reactions at nitrogen of pyridine. 3 marks (10)

5) Explain the various methods for protection of carboxyl and amino group. (10)

SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

6) Define the following reactions with an example
i) Ugi reaction ii) Michael addition reaction (5)

7) What is DCC? Give the properties and its synthetic applications (5)

8) Give any one method of synthesis and any reaction for the following heterocycles
a) Isoquinoline b) pyrilium (5)

9) Explain the stability and synthetic applications of carbocations. (5)

10) Draw structures for the following IUPAC names.
a) 2H-1,2-benzoxazine b) thieno[3,4-b]furan
c) furo[3,2-d]pyrimidine d) 4H-[1,3]thiazino[3,4-a]azepine
e) imidazo[2,1-b]oxazole (5)

Exam Date & Time: 31-Dec-2019 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

Advanced Medicinal Chemistry [PCH-MPC103T]

Marks: 75 **Duration: 180 mins.**

SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

1) Explain peptide back bone modification as a tool in peptidomimetic drug design (10)

2) What are produrgs? Explain prodrugs prepared for pharmacokinetics applications with example (10)

3) With help of a neat diagram explain
a) Combinatorial Synthesis of a peptide
b) Split and Mix method of synthesis
c) Highthroughput screening method (10)

4) Define analogue design. Explain the different categories of analogue design. What are twin drugs? (10)

5) What information must be submitted to regulatory authorities while submitting Investigational New Drug application? (5)

A)

B) Explain the importance of following drug receptor interactions
a) Covalent b) Electrostatic c) Hydrogen Bond (5)

SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

6) Explain the importance of following drug receptor interactions
a) Ion-Dipole and Dipole-Dipole Interactions b) Hydrophobic
c) Cation-π Interaction (5)

7) What are covalent drugs? What are their advantages? (5)

8) With suitable examples, discuss about the type of functional groups that leads to covalent binding. (5)

9) Classify enzymes with example. (5)

Explain any one technique used in Fragment Based drug design

10) How geometrical isomers of drug molecules influence the biological activity? Explain with example (5)

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