

Dr.B.R.AMBEDKAR OPEN UNIVERSITY
FACULTY OF SCIENCE
M.Sc. – II year -CHEMISTRY (2018-19)
Course – 5 : ORGANIC REACTION MECHANISM-II, PERICYCLIC REACTIONS,
ORGANIC PHOTOCHEMISTRY, STEREO CHEMISTRY-II

FIRST ASSIGNMENT

Maximum Marks – 15

Minimum Marks - 06

Section – A [1X10=10]

(Essay Type)

Answer any *one* question from the following Two questions

1. Formulate the mechanism of the following reactions
 - a. Michael addition.
 - b. Pinacol-Pinacolone rearrangement..
 - c. Favorskii rearrangement.
 - d. Hofmann rearrangement.
 - e. Pyrolytic elimination.
2.
 - a. What are pericyclic reactions? Classify them with suitable examples.
 - b. Give orbital symmetry correlation diagram for $4n+2$ Electro cyclisation reaction.

Section –B[1X5=5]

(Short Type)

Answer any *one* question from the following Two questions

1. Discuss about the orientations of Elimination reactions.
2.
 - a. Draw the π -molecular orbitals for the 1,3,5-hexatriene.
 - b. Predict the reaction conditions for $[\pi^4+\pi^2]$ cycloaddition by FMO method.

SECOND ASSIGNMENT

Maximum Marks – 15

Minimum Marks – 06

Section – A

(Essay Type) – [1X10=10]

(Answer any One question from the following Two questions)

1.
 - a. Discuss about Jablonski diagram.
 - b. Give the mechanism for the Norish-I, Norish-II, Photo Fries rearrangement and paterno-buchi reactions.
2. Discuss the conformations of cyclohexene, quinolizidine, and decalins .

Section –B

(Short Type) –[1X5=5]

(Answer any one question from the following Two questions)

1. Explain the following.
 - a. Cis-trans isomerisation of Alkenes:
 - b. Di- π -methane rearrangement.
2. What are the preferred configurations of the following molecules?:
 - a) Meso-butane 2,3-diol.
 - b) 2L,3D-butane-2,3-diol.
 - c) Cyclohexane

Dr.B.R.AMBEDKAR OPEN UNIVERSITY
FACULTY OF SCIENCE
M.Sc II Year - CHEMISTRY (2018-19)
COURSE – 6 : SYNTHETIC ORGANIC CHEMISTRY

FIRST ASSIGNMENT

Maximum Marks -- 15
Minimum Marks – 06

SECTION --A – [1x10=10]

(Essay Type)

(Answer any *One* question from the following Two questions)

1. Write short notes on:
 - a) Oppenauer Oxidation
 - b) Oxidation with DDQ and AgCO₃.
 - c) Reduction with LiAlH₄, NaBH₄, DIBAL.
 - d) Clemmensen reduction and Bouveault-Blanc reduction.
2. Write a short note on:
 - a. Aldol Condensation.
 - b. Stork enamine
 - c. Wittig reaction
 - d. Robinson Annulations
 - e. Synthetic Applications of Organo Boranes.

SECTION – B [1x5=5]

(Short Type)

(Answer any *One* question from the following Two questions)

1. What is oxidation? Explain different types of oxidations using at least one example..
2. Discuss synthetic applications of trimethyl silyl enol and ketene acetals..

SECOND ASSIGNMENT

Maximum Marks -- 15
Minimum Marks – 06

SECTION --A – [1x10=10]

(Essay Type)

(Answer any One question from the following Two questions)

1. Discuss the following.
 - a. One group C-X Disconnection
 - b. Two group C-X Disconnection.
2. a. Explain the following with suitable examples. i. Homotopic units, ii. Heterotopic Units, iii. Homomeric ligands, iv. Homomeric faces.
b. write a note on Felkin-Anh model, ii. Cram's dipolar model.

SECTION – B [1x5=5]

(Short Type)

(Answer any One question from the following Two questions)

1. Write the retrosynthetic analysis and synthesis of Disparlure and Z-Jasmone..
2. Write a note on i. Enantioselective differentiation reactions, ii. Enantio face differentiation reactions.

Dr.B.R.AMBEDKAR OPEN UNIVERSITY
FACULTY OF SCIENCE
M.Sc II Year – CHEMISTRY(2018-19)
COURSE – 7: NATURAL PRODUCTS, HETROCYCLES, BIOGENSIS AND
SPECTROSCOPY

FIRST ASSIGNMENT

Maximum Marks -- 15
Minimum Marks – 06

SECTION --A – [1x10=10]

(Essay Type)

(Answer any One question from the following Two questions)

1. Write a short note on structure determination of PGE1 α , PGE2 α , PGE3 α and give the synthesis of morphine, cholesterol and give the structures of oestrone, testosterone and vitamin A, B, C, D, E, K.
2. Write a note on a. Enzyme inhibition. b. factors effecting the enzymatic catalysis. C. Feeding experiments, d. biosynthesis of aromatic compounds by Shikimic acid pathway.

SECTION – B – [1x5=5]

(Short Type)

(Answer any One question from the following Two questions)

1. Discuss the structure elucidation of Rotenone and give their synthesis.
2. What is Lipogenesis? Write down the steps involved in fatty acid metabolism and discuss about the biosynthesis of terpenoids by Mevolonate path way..

SECOND ASSIGNMENT

Maximum Marks -- 15
Minimum Marks – 06

SECTION --A – [1x10=10]

(Essay Type)

(Answer any One question from the following Two questions)

1. Discuss any two methods of synthesis and chemical reactions of isoxazole, imidazole, triazole, tetrazole, pyrimidine and aziridines.
2. Discuss the following.
 - a. Types of ^{13}C NMR spectra and factors affecting on chemical shift in ^{13}C NMR.
 - b. Applications of ^{19}F NMR.
 - c. Explain about 2D NMR techniques.

SECTION – B [1x5=5]

(Short Type)

(Answer any One question from the following Two questions)

1. What are Purine and Pyrimidine bases? Discuss their one synthesis and two reactions for each.
2. Write a note on a. Cotton effect (CE) b. Octant rule and its applications.

Dr.B.R.AMBEDKAR OPEN UNIVERSITY
FACULTY OF SCIENCE
M.Sc II Year – CHEMISTRY (2018-19)
COURSE – 8 : DRUGS & PHARMACEUTICALS

FIRST ASSIGNMENT

Maximum Marks -- 15
Minimum Marks – 06

SECTION --A – [1x10=10]

(Essay Type)

(Answer any One question from the following Two questions)

1. a. Explain the strategies involved in the lead modification from the synthesis of analogues.
b. Discuss the SAR studies of Sulphonamides.
2. a. What are resins and linkers used in combinatorial synthesis?
b. Explain about Hansch method of QSAR studies.

SECTION – B [1x5=5]

(Short Type)

(Answer any One question from the following Two questions)

1. What is lead and lead discovery? Explain the drug discovery with lead.
2. a. What is Prodrug? Explain the principles of prodrug design.
b. Write a short note on Broad spectrum antibiotics.

SECOND ASSIGNMENT

Maximum Marks -- 15
Minimum Marks – 06

SECTION --A – [1x10=10]

(Essay Type)

(Answer any One question from the following Two questions)

1. a. Write a brief note on Drugs affecting adrenergic nervous system.
b. What is the importance of Carbonic anhydrase? Explain about the Carbonic anhydrase inhibition.
2. What are ion channels? Discuss about the drugs acting on Sodium ion channels and Calcium ion Channels.

SECTION – B [1x5=5]

(Short Type)

(Answer any One question from the following Two questions)

1. a. What are Cholinergic agonist and antagonists? Explain anti cholinesterases.
b. write a note on Histamine receptor antagonists.
2. Explain the following.
 - a. DNA Polymerase inhibitors
 - b. Pfeiffer's rule
 - c. Quality control methods in Drug analysis.