

LESSON PLAN FOR EVEN SEMESTER
SESSION 2017-18

Name of the Assistant Professor : Dr. Rajesh Kumar
Class : M.Sc. (F) Sem IV (Classes on day 1, 2, 3, 5, 6)
Subject : Organic Chemistry (Theory: Paper XVII & XVIII;
 Practical: Paper XXI, XXII, XXIII)

| UNIT/PART I | Paper XVIII: Section B Flavonoids & Section A Disconnection Approach-I | |
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| | THEORY | PRACTICAL |
| DAY1 DATE 1-1-18 | Introduction, Occurrence, Nomenclature of Flavonoids | -- |
| DAY2 DATE 2-1-18 | General (chemical and spectroscopic) methods of structure determination of flavonoids | -- |
| DAY3 DATE 3-1-18 | Isolation, structure determination and synthesis of Cyanin-I | -- |
| DAY4 DATE 5-1-18 | Isolation, structure determination and synthesis of Cyanin-II | Quantitative estimation: Saponification value of fats/oils |
| DAY5 DATE 6-1-18 | -- | Quantitative estimation: Saponification value of fats/oils |
| DAY6 DATE 8-1-18 | Isolation, structure determination and synthesis of Quercetin | -- |
| DAY7 DATE 9-1-18 | Isolation, structure determination and synthesis of Diadzein | -- |
| DAY8 DATE 10-1-18 | Isolation, structure determination and synthesis of Chrysin | -- |
| DAY9 DATE 12-1-18 | Biosynthesis of Flavonoids : Acetate pathway and Shikimic acid pathway | Quantitative estimation: Saponification value of fats/oils |
| DAY10 DATE 13-1-18 | -- | Quantitative estimation: Saponification value of fats/oils |
| DAY11 DATE 15-1-18 | Biosynthesis of catechin | -- |
| DAY 12 DATE 16-1-18 | An introduction of Disconnection Approach in organic synthesis | -- |
| DAY13 DATE 17-1-18 | An introduction of synthons and synthetic equivalents, functional group interconversions | -- |
| DAY14 DATE 19-1-18 | General principles of the disconnection approach | Quantitative estimation: Iodine value of fats/oils |
| DAY15 DATE 20-1-18 | -- | Quantitative estimation: Iodine value of fats/oils |
| DAY16 DATE 22-1-18 | HOLIDAY | |
| DAY 17 DATE 23-1-18 | SPORTS DAY | |
| DAY18 | HOLIDAY | |

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| DATE 24-1-18 | | |
| DAY19 DATE 26-1-18 | HOLIDAY | |
| DAY 20 DATE 27-1-18 | -- | Quantitative estimation: Iodine value of fats/oils |
| UNIT/PART II | Paper XVII: Section A Disconnection Approach-I | |
| | THEORY | PRACTICAL |
| DAY1 DATE 29-1-18 | The importance of order of events in organic synthesis | -- |
| DAY2 DATE 30-1-18 | One group C-X disconnections-I | -- |
| DAY3 DATE 31-1-18 | HOLIDAY | |
| DAY4 DATE 2-2-18 | One group C-X disconnections-II | Quantitative estimation: Unsaturation |
| DAY5 DATE 3-2-18 | -- | Quantitative estimation: Reducing sugars |
| DAY6 DATE 5-2-18 | Two group C-X disconnections-I | -- |
| DAY7 DATE 6-2-18 | Two group C-X disconnections-II | -- |
| DAY8 DATE 7-2-18 | One group C-C disconnections-I | -- |
| DAY9 DATE 9-2-18 | One group C-C disconnections-II | Quantitative estimation: reducing sugars |
| DAY10 DATE 10-2-18 | HOLIDAY | |
| DAY11 DATE 12-2-18 | Chemoselectivity-I | -- |
| DAY12 DATE 13-2-18 | HOLIDAY | |
| DAY13 DATE 14-2-18 | Chemoselectivity-II | -- |
| DAY14 DATE 16-2-18 | Regioselectivity and Regiospecificity | Quantitative estimation of Non reducing sugars |
| DAY15 DATE 17-2-18 | Sessional-I (Paper XVII & XVIII) | |
| DAY16 DATE 19-2-18 | Sessional-I (Paper XIX & XX) | |
| DAY17 DATE 20-2-18 | Stereoselectivity and Stereospecificity | -- |
| DAY18 DATE 21-2-18 | Reversal of polarity-I | -- |
| DAY19 DATE 23-2-18 | Reversal of polarity-II | Quantitative estimation of Non reducing sugars |
| UNIT/PART III | Paper XVII: Section B Disconnection Approach-II | |
| | THEORY | PRACTICAL |

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| DAY1 DATE 24-2-18 | -- | Quantitative estimation of acetoxy group |
| DAY2 DATE 26-2-18 | Amine synthesis-I | -- |
| DAY3 DATE 27-2-18 | Amine synthesis-II | -- |
| DAY4 DATE 28-2-18 | HOLIDAY | |
| DAY5 DATE 1-3-18 | HOLIDAY | |
| DAY6 DATE 2-3-18 | HOLIDAY | |
| DAY7 DATE 3-3-18 | HOLIDAY | |
| DAY8 DATE 5-3-18 | Synthesis of alkenes-use of Wittig reagents | -- |
| DAY9 DATE 6-3-18 | Use of acetylene in organic synthesis | -- |
| DAY10 DATE 7-3-18 | Use of aliphatic nitro compounds in organic synthesis | -- |
| DAY11 DATE 9-3-18 | Synthesis of three membered rings | Quantitative estimation of acetoxy group |
| DAY12 DATE 10-3-18 | -- | Colorimetric determination of amino acid |
| DAY 13 DATE 12-3-18 | Photochemistry in organic synthesis-synthesis of four membered rings | -- |
| DAY14 DATE 13-3-18 | Uses of ketenes in organic synthesis | -- |
| DAY15 DATE 14-3-18 | Synthesis of five membered rings | -- |
| DAY16 DATE 16-3-18 | Synthesis-synthesis of Six membered rings-I | Isolation and purification of caffeine from tea leaves |
| DAY17 DATE 17-3-18 | -- | Separation and purification of mixtures using TLC-I |
| DAY18 DATE 19-3-18 | Synthesis-synthesis of Six membered rings-II | -- |
| DAY19 DATE 20-3-18 | Introduction and Principle of protective groups | -- |
| DAY20 DATE 21-3-18 | Principle and methods of protection and deprotection of alcoholic groups | -- |
| DAY 21 DATE 23-3-18 | HOLIDAY | |
| DAY 22 DATE 24-3-18 | -- | Separation and purification of mixtures using TLC-II |
| UNIT/PART IV | Paper XVII: Section C Disconnection Approach-III | |
| | THEORY | PRACTICAL |

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| DAY1 DATE 26-3-18 | Principle and methods of protection and deprotection of amino groups | -- |
| DAY2 DATE 27-3-18 | Principle and methods of protection and deprotection of carbonyl groups | -- |
| DAY3 DATE 28-3-18 | Principle and methods of protection and deprotection of carboxyl groups | -- |
| DAY4 DATE 30-3-18 | Two group C-C disconnection- Diels Alder reactions | Separation and purification of mixtures using TLC-III |
| DAY5 DATE 31-3-18 | -- | Three Step Organic Preparation |
| DAY6 DATE 2-4-18 | Two group C-C disconnection- 1,3-difunctionalized compounds | -- |
| DAY7 DATE 3-4-18 | Two group C-C disconnection- α , β -unsaturated carbonyl compounds | -- |
| DAY8 DATE 4-4-18 | Control in carbonyl condensations-I | -- |
| DAY9 DATE 6-4-18 | Control in carbonyl condensations-II | Three Step Organic Preparation |
| DAY10 DATE 7-4-18 | -- | Use of Chem Draw Software to draw chemical structures and chemical reactions and analysis of IR & NMR spectra of organic compounds |
| DAY11 DATE 9-4-18 | 1,5-difunctionalized compounds- Michael addition and Robinson Annulation | -- |
| DAY12 DATE 10-4-18 | Disconnection approach towards the synthesis of Juvabione and their relative merits and demerits-I | -- |
| DAY13 DATE 11-4-18 | Disconnection approach towards the synthesis of Juvabione and their relative merits and demerits-II | -- |
| DAY14 DATE 13-4-18 | Sessional-II (Paper XVII & XVIII) | |
| DAY15 DATE 14-4-18 | HOLIDAY | |
| DAY16 DATE 16-4-18 | Sessional-II (Paper XIX & XX) | |
| DAY17 DATE 17-4-18 | A detailed study including mechanism of Darzens synthesis, Stroke enamine synthesis and Shapiro reaction | -- |
| DAY18 DATE 18-4-18 | HOLIDAY | |
| DAY19 DATE 20-4-18 | A detailed study including mechanism of Sharpless asymmetric epoxidation, Prevost and Woodward hydroxylation | Use of Chem Draw Software to draw chemical structures and chemical reactions and analysis of IR & NMR spectra of organic compounds |

LESSON PLAN FOR EVEN SEMESTER
SESSION 2017-18

Name of the Assistant Professor : Dr. Rajesh Kumar
Class : M.Sc. (P) Sem II (Classes on day 1, 4)
Subject : Organic Chemistry (Theory: Paper VII;
 Practical: Paper XI)

| Paper VII: Section C Free Radicals | | |
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| UNIT/PART I | THEORY | PRACTICAL |
| DAY1 DATE 1-1-18 | | Instruction for organic preparation and purification techniques |
| DAY2 DATE 4-1-18 | General aspects of generation and structure of free radicals | |
| DAY3 DATE 8-1-18 | | Two Step Organic Preparation-I |
| DAY4 DATE 11-1-18 | Stability of free radicals | |
| DAY5 DATE 15-1-18 | | Two Step Organic Preparation-II |
| DAY6 DATE 18-1-18 | Reactivity of free radicals and types of free radical reactions | |
| DAY7 DATE 22-1-18 | HOLIDAY | |
| DAY8 DATE 25-1-18 | Halogenation of free radicals including allylic halogenation (NBS) | |
| UNIT/PART I | Paper VII: Section C Free Radicals | |
| | THEORY | PRACTICAL |
| DAY1 DATE 29-1-18 | | Two Step Organic Preparation-III |
| DAY2 DATE 1-2-18 | Autooxidation, decomposition of azo compounds and peroxides | |
| DAY3 DATE 5-2-18 | | Two Step Organic Preparation-IV |
| DAY4 DATE 8-2-18 | Coupling of alkynes | |
| DAY5 DATE 12-2-18 | | Two Step Organic Preparation-V |
| DAY6 DATE 15-2-18 | Homolytic aromatic substitution, Sandmeyer reaction and Hunsdiecker reaction | |
| DAY7 DATE 19-2-18 | Sessional-I (Paper VII & VIII) | |
| DAY8 DATE 22-2-18 | Mechanism of addition of hydrogen halide to alkenes | |

| UNIT/PART I | Paper VII: Section C Addition to C-C Multiple Bond | |
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| | THEORY | PRACTICAL |
| DAY1 DATE 26-2-18 | | Mixture Analysis |
| DAY2 DATE 1-3-18 | HOLIDAY | |
| DAY3 DATE 5-3-18 | | Mixture Analysis |
| DAY4 DATE 8-3-18 | Mechanism of addition of H ₂ O and halogens to alkenes | |
| DAY 5 DATE 12-3-18 | | Mixture Analysis |
| DAY6 DATE 15-3-18 | Mechanism of addition of HOX and mercuric salt to alkenes | |
| DAY7 DATE 19-3-18 | | Mixture Analysis |
| DAY8 DATE 22-3-18 | Hydroboration of alkenes and formation of C-C bonds <i>via</i> organoboranes | |
| UNIT/PART I | Paper VII: Section C Addition to C-C Multiple Bond | |
| | THEORY | PRACTICAL |
| DAY1 DATE 26-3-18 | | Mixture Analysis |
| DAY2 DATE 29-3-18 | HOLIDAY | |
| DAY3 DATE 2-4-18 | | Mixture Analysis |
| DAY4 DATE 5-4-18 | Mechanism of addition of hydrogen halide, H ₂ O, and halogens to alkynes | |
| DAY5 DATE 9-4-18 | | Mixture Analysis |
| DAY6 DATE 12-4-18 | Mechanism of addition of HOX, mercuric salt to alkynes and Hydroboration of acetylenes | |
| DAY7 DATE 16-4-18 | Sessional-II (Paper VII & VIII) | |
| DAY8 DATE 19-4-18 | Nucleophilic addition to alkenes | |