

Quadrant II – Transcript and Related Materials

Programme: T.Y.B.Sc. (Chemistry)

Subject: Chemistry

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Paper Title: Core Course Organic Chemistry

Unit: 01- Aromaticity, Aromatic hydrocarbons and Reactivity

Module Name: Deactivating groups

Module No: 08

Name of the Presenter: Ms. Anuja B. Naik

Glossary of terms/words:

Carbocation A positively charged carbon atom. A carbocation is sp^2 hybridized and trigonal planar and contains a vacant p orbital.

Chlorination The reaction of an organic compound with chlorine.

Electron-withdrawing inductive effect An inductive effect in which a nearby electronegative atom pulls electron density towards itself through σ bonds.

Electrophilic aromatic substitution A characteristic reaction of benzene in which a hydrogen atom on the ring is replaced by an electrophile.

Meta director A substituent on a benzene ring that directs a new group to the meta position during electrophilic aromatic substitution.

Meta isomer A disubstituted benzene ring in which two substituents are on carbon atoms separated by a single ring carbon (i.e., a 1,3-disubstituted benzene).

Nitration An electrophilic aromatic substitution reaction in which benzene reacts with a nitronium ion to give a nitrobenzene.

Ortho director A substituent on a benzene ring that directs a new group to the ortho position during electrophilic aromatic substitution.

Ortho isomer A disubstituted benzene ring in which two substituents are on adjacent carbon atoms (i.e., a 1,2-disubstituted benzene).

Para director A substituent on a benzene ring that directs a new group to the para position during electrophilic aromatic substitution.

Para isomer A disubstituted benzene ring in which two substituents are on carbon atoms that are separated by two ring carbons (i.e., a 1,4-disubstituted benzene).

Resonance structures Two or more structures of a molecule that differ in the placement of π bonds and non-bonded electrons. The placement of atoms and σ bonds stays the same.

Substituent A group or branch attached to the longest continuous chain of carbons in an organic molecule.

Substitution reaction A reaction in which an atom or a group of atoms is replaced by another atom or group of atoms. Substitution reactions involve σ bonds: one σ bond breaks and another is formed at the same atom.

Sulfonation An electrophilic aromatic substitution reaction in which benzene reacts with $^+\text{SO}_3\text{H}$ to give a benzene sulfonic acid.

Transition state An unstable maximum energy state in a chemical reaction when it forms products from reactants.

