

# Sri Aurobindo College (M)

## University of Delhi

### B.Sc. Physical Science I<sup>st</sup> Year II Semester Section A

### Internal Assessment: Organic Chemistry Assignment

**Student Name:**

**Class Roll No:**

**Submitted to: Dr. Pradhumn Singh**

**Dated:**

**Q.1** What is the Huckel's  $(4n+2)$   $\pi$  electron rule? How does this rule explain the aromatic character of benzene?

**Q.2** How Does Kekule's structure account for all of the observed properties of benzene? Write the drawbacks of kakule's structure.

**Q.3** Describe the stability of benzene in the light of resonance concept. How will you explain that C—C bond length in benzene is uniformly 1.39 Å?

**Q.4** Benzene possesses three double bonds even though it is more stable than any alkene. Further, it does not shows addition reaction under normal conditions, rather shows substitution reaction. Why? Elaborate your answer.

**Q.5** What are  $\sigma$  and  $\pi$  complexes? Discuss their role in aromatic electrophilic substitution reaction with the help of energy diagram.

**Q.6** Discuss the mechanism (along with the structure of attacking electrophile and carbocation stability) of electrophilic aromatic substitution reactions of benzene in reference of the followings:

(i) Nitration (ii) Halogenation (iii) Sulphonation (iv) Friedel-Craft's alkylation and Acylation