DII-003-011404 Seat No. _____

M. Sc. (Industrial Chemistry) (Sem. IV) (CBCS) Examination

May / June – 2015

IC - 404 : Advanced Organic Chemistry

Faculty Code : 003
Subject Code : 011404

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

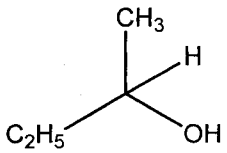
Instructions: 1) All Questions are compulsory & carries 14 marks.

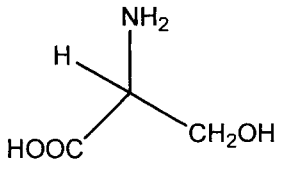
Q.1] Answer any Seven out of the following ten questions: **14**

1. Define stereochemistry.
2. What is optical activity? Define dextrorotatory and levorotatory.
3. Describe the term Atropisomers and racemic mixture.
4. Give two applications of Reformatsky reaction.
5. Draw the staggered and eclipsed conformation of cyclohexane.
6. Give two applications of Sonogashira cross coupling reaction.
7. Discuss optical isomerism in biphenyl compounds.
8. Define green chemistry and sustainability.
9. Give Principal and mechanism of Sharpless epoxidation.
10. Explain Cis and Trans isomerism with example.

Q2] Answer any Two from the following three questions: **14**

1. Discuss the stereochemistry of Allenes.
2. Explain principle of green chemistry.
3. Give fisher projection of following compound and assign configurations.





Q3] Answer the following Two questions: **14**

1. Explain the conformation of 1:3 dimethyl cyclohexane.
2. Discuss Stille cross coupling reaction.

OR

Q3] Answer the following Two questions: **14**

1. Define the term stereoisomer and give classification with examples.
2. Give three applications of $NaCNBH_3$ and $Tl(NO_3)_3$.

Q4] Answer any Two from the following three questions: **14**

1. Define Asymmetric induction and discuss Prelog's rule.
2. Give preparation and applications of lithium organocuprates reagent.
3. Give Principle, Mechanism and application of Strecker reaction.

Q5] Answer any Two from the following four questions: **14**

1. Explain: (i) Principle and advantages of microwave assisted organic reaction
   (ii) Miyaura coupling reaction with example.
2. Discuss in detail DIBAL.
3. Describe D and L nomenclature giving examples.
4. Give Heck reaction.