000000ST.JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU – 27

M.Sc. CHEMISTRY – II SEMESTER

SEMESTER EXAMINATION - APRIL – 2017

**CH 8215 – Organic Chemistry - II**

Time: 2.5 hours Maximum marks: 70

This question paper has **FIVE** printed pages and **THREE** parts

Answer any **SIX** questions of the following: (6×2 = 12)

**PART – A**

1. Write the structure of the product(s) formed in the following reaction:



1. How will you synthesise the following compound using Wittig reaction?



1. What is Japp - Klingemann reaction?
2. What are SE2 (front) and SE2 (back) reactions? How do you distinguish between them?
3. What is quantum efficiency of photochemical reactions?
4. How do you generate free radicals by photolysis of peresters and thermolysis of azo

compounds? Give an example each.

1. What is an ‘ene’ reaction? Give an example.
2. Using transition state aromaticity, show that supra – supra addition of two ethene molecules is symmetry forbidden under thermal condition.

**PART – B**

Answer any **FOUR** questions of the following: (4×12 = 48)

9) a) How are the following compounds obtained by the rearrangement reaction indicated in each case, making use of any compounds and reagents you may require?

 

b) Write the acid catalysed mechanism of α – halogenation reaction of a ketone. Mention any two evidences in favour of the mechanism. Explain what happens if a methyl ketone is subjected to the same under basic condition? (6+6)

10) Predict the major product and sketch a suitable mechanism for each of the following

 reactions.



11) How will you bring about the following conversions?





12) a) Predict the products and indicate them as major and minor product. Label each

 product as ortho / meta /para.





 b) Give the products and indicate their stereochemistry. Explain based on FMO

 approach.



 (6+6)

13) a) Explain the mechanism of Patterno- Buchi reaction. What are the possible products

 when acetone reacts with 2-butyne under photochemical conditions?

 b) Give the mechanism of cis - trans isomerisation of alkenes by direct irradiation.

 c) What is di – π methane rearrangement? What is the product formed when each of

 the following undergo this rearrangement? (4+4+4)

 

14) a) Explain inverse demand Diels – Alder reaction with the help of an example.

 b) In the following reaction identify A and B. What is the name of second step?

 Show the movement of bonds to show the formation of B from A .



 c) Discuss the migration of – H and – CH3 group in [1,3] – sigmatropic rearrangements

based on FMO approach under i) thermal ii) photochemical conditions. Comment

on the mode of migration and allowed stereochemistry. (3+3+6)

**PART – C**

Answer any **TWO** questions of the following: (2×5 = 10)

15) a) How will you prepare the following using Fischer – Indole synthesis?



 b) Complete the following reaction.

 (3+2)

16) How will you bring about the following conversions?

(2.5+2.5)

17) Show how the following products D,E and F are formed? Name the reaction in each

 case.



\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*End of the question paper\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*