

End Semester Examination [May 2017]
First Year, Semester II,
CH 122, Organic Reaction Mechanisms

Date: 11/05/2017

Time: 10.30 – 12:30 PM

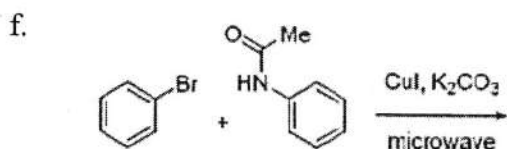
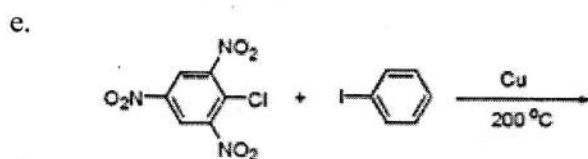
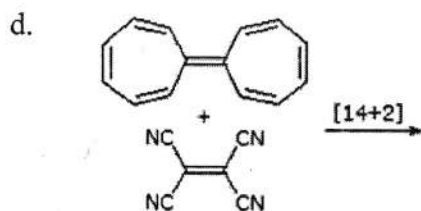
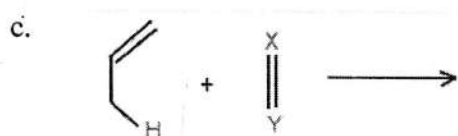
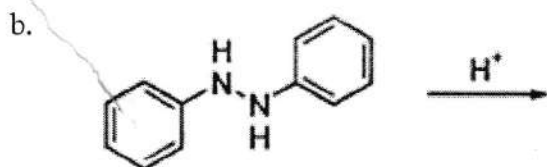
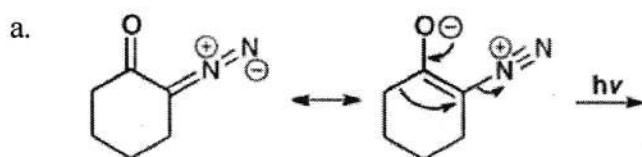
Marks: 40

Important Instructions

1. All the Questions are Compulsory.
2. Please read the questions carefully and answer accordingly.
3. This question paper contains TWO pages.

Q 1. Complete the following reactions:-

[Marks = 6 × 2 = 12]



Q 2. Answer the following questions in brief:-

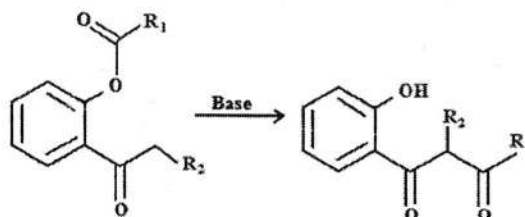
[Marks = 6 × 3 = 18]

- State important characteristics of pericyclic reactions.
- What are the different types of sigmatropic reactions? Give one example of each type.
- What is the plausible mechanism of sonogashira reaction?
- Write short note on Suzuki cross coupling reaction.
- There is an organic redox reaction in which an *ortho*- or *para*-hydroxylated phenyl aldehyde (2-hydroxybenzaldehyde or 4-hydroxybenzaldehyde) or ketone reacts with hydrogen peroxide in base to form a benzenediol and a carboxylate. Overall, the carbonyl group is oxidized, and the hydrogen peroxide is reduced. Identify the rearrangement described & write its overall reaction.
- It is a chemical reaction used in organic chemistry for ring formation. It was discovered by Robert Robinson in 1935 as a method to create a six membered ring by forming three new carbon-carbon bonds. The method uses a ketone and a methyl vinyl ketone to form an α,β -unsaturated ketone in a cyclohexane ring by a Michael addition followed by an aldol condensation. This procedure is one of the key methods to form fused ring systems. Identify the rearrangement described & write its overall reaction.

Q 3. Answer any TWO of the following in detail:-

[Marks = 2 × 5 = 10]

- Draw an arrow pushing mechanism for the following reaction:



- How organozinc compounds are prepared & what are their synthetic uses?
- Draw molecular orbital diagram for butadiene and demonstrate how Woodward Hoffmann rules are used to check feasibility of electrocyclic reactions.
