

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**M.Sc. Winter 2019-20 Examination**

**Semester: 3**  
**Subject Code: 11205202**  
**Subject Name: Redox Reactions and Organometallics**

**Date: 28/11/2019**  
**Time: 02:00 pm to 04:30 pm**  
**Total Marks: 60**

**Instructions:**

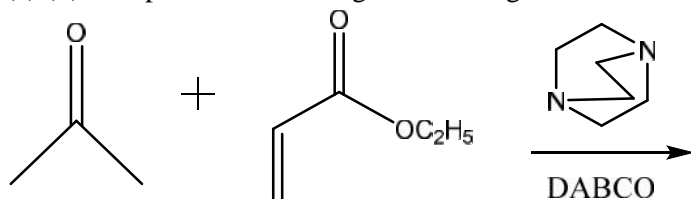
- All questions are compulsory.
- Figures to the right indicate full marks.
- Make suitable assumptions wherever necessary.
- Start new question on new page.

**Q.1. A) Brief note (4x2) (Each of 04 marks) (08)**

- Give a detail note on Knoevenagel reaction & its mechanism.
- Explain mechanism of Darzen Glycidic ester condensation reaction.

**Q.1. B) Answer the following questions (Any two)**

- (i) Complete the following reaction & give its mechanism. (04)



- Write a complete note on Mannish Reaction. (04)
- Write a short note on Stork-Enamine reaction & its mechanism. (04)

**Q.2. A) Answer the following questions.**

- Write a Short note on Wilkinson Catalyst. (04)
- Explain Sonogashira reaction. Write its mechanism and give two examples of it. (04)

**Q.2. B) Answer the following questions (Any two)**

- Fill in the gaps/ Short questions. (Each of 01 marks) (03)
  - What is 18 electron rule?
  - Give structure and geometry of Tebbe's reagent? What is precursor of Tebbe's reagent.
  - The reaction is used industrially to prepare acetaldehyde from ethylene is called \_\_\_\_\_.
- Write a brief note on Ziegler-Natta catalyst & its mechanism. (03)
- Explain Hydro-formylation reaction & give its two examples. (03)

**Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**

- Write a short note on Baeyer-Villiger oxidation & its mechanism.
- Explain Swern Oxidation by giving its mechanism.

**Q.3. B) Answer the following questions (Any two)**

- Complete the following reactions/Multiple choice questions. (04)
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(iii) Oxidation of Vicinal diols gave

- (a) Ketones      (b) Aldehyde      (c) Cyclic alkane      (d) Esters

(iv) The following reaction follows anti Markov-nikov rule.

- (a) Swern Oxidation      (b) Riley Oxidation      (c) Hydroboration-Oxidation      (d) None

(b) Describe Riley Oxidation in detail.

(04)

- What is DDQ? Give its full name & Structure. When benzyl alcohol oxidize with DDQ what will be the product – Give this reaction. (04)

**Q.4. A) Answer the following questions.**

(a) Brief note on the following (Each of 02 marks) (04)

1. Partial Reduction of Alkynes
2. Chemo selective reduction. Give its two examples.

(b) Give a detail note on Birch Reduction & its mechanism. (04)

**Q.4. B) Answer the following questions (Any two)**

(a) Multiple choice questions/Fill in the blanks (Each of 01 marks) (03)

1. Using Red-Al amide can be reduced to  
(i) Amine (ii) Cyanide (iii) alcohol (iv) ketone
2. In K-Selectride following metal is used  
(i) Sodium (ii) Potassium (iii) Lithium (iv) Rubidium
3. The full form of DIBAL \_\_\_\_\_.

(b) Give a detail note on RED-Al. Give two reduction reaction using RED-Al. (03)

(c) Complete the following reactions. (03)

