SC

[33/A-9]

SEAT No._____ **No of printed pages: 03**

SARDAR PATEL UNIVERSITY

M.Sc. (Chemistry) Semester-II Examination

Wednesday, 20th March 2019

Organic chemistry-II (PS02CCHE02)

Time : 10.00 am to 1.00 pm **Total Marks:70**

Note: Right hand figures indicate marks

Q. 1 : Select the correct answer from each of the following. **[08]**

1) β-amino carboxylic acid upon reaction with DCC gives_____

a) γ-lactone b) β-lactum c) Peptide d) cyclopropyl ketone

2) Reduction of acetone using $NaBH_4$ gives _____

a) 1-propanol b) 2-propanol c) 1-propanal d) propanoic acid

3) Which of the following reaction involves the formation of betain intermediate?

a) Wittig reaction b) Robinson reaction c) Peterson reaction d) Mannich reation

4) Oxidation number of carbon-1 in acetic acid is_____

a) +2 b) +3 c) -3 d) 0

5) Reagent $Pd/CaCO_3$ is known as _____ catalyst.

a) Lindlar b) Rosenmund c) Adam's d) Willkinsons

6) Prevost hydroxylation is _____ hydroxylation.

a) Syn b) Anti c) cis d) None

7) Which intermediate is formed in Bamford-Stevens reaction using protic solvent?

a) Carbocation b) Carbanion c) Carbene d) Nitrene

8) Which of the following reaction follows Markovnikoff's rule?

a) Wittig reaction b) Hydroboration reaction c) Peterson reaction d) Shapiro reation

Q. 2: Answer the following short questions (Any 7) **[14]**

1) Why Stork enamine reaction is carried out under inert and dry condition?

2) Write the synthesis of methyl vinyl ketone by using Mannich reaction.

3) How does Bamford-Stevens reaction is differ from Shapiro reaction?

(P.T.O.)

4) How will you prepare 9-BBN?

5) What are the applications of Jones reagent?

6) Give the mechanism of oxidation of benzylic alcohol using MnO_2.

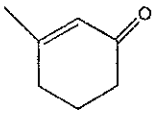
7) What are the advantages of phase transfer catalyst?

8) Describe the reduction of acetaldehyde and ethyl acetate by $LiAlH_4$.

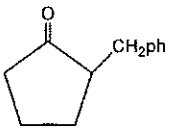
9) Give the synthesis and IUPAC name of 18-crown-6.

Q. 3. A) Write the synthesis of following compounds by reaction mention against them. **[06]**

1) Robbinson ring annulation



2) Stork enamine reaction



B) Answer the following questions. **[06]**

1) Show that Stork enamine reaction is regioselective in case of unsymmetrical ketone.

2) Explain the Schlosser modification.

OR

B) Answer the following questions. **[06]**

1) Why does non-stabilized ylide preferentially lead to the formation of Z-alkene in Wittig reaction?

2) Explain the role of DCC in following reaction.

$$CH_3COOH + CH_3NH_2 \xrightarrow[0^0]{DCC} \ ?$$

Q.4. A) Answer the following questions. **[06]**

1) Discuss the Shapiro reaction with mechanism.

2) Give the importance of carbonylation of organoborane compounds in organic synthesis.

B) Answer the following questions. **[06]**

1) Explain the dependency of Bamford-Stevens reaction on nature of solvent.

2) What are the differences in reactivity of internal and terminal alkyne in hydroboration followed by alkaline hydrogen peroxide oxidation?

OR

B) Answer the following questions. [06]

1) Show that Peterson olefination follows anti elimination under acidic condition.

2) Give the synthesis of ph-CH=CH-$COCH_2CH_3$ from formaldehyde using 1,3-dithiane.

Q.5. A) Answer the following questions. [06]

1) Discuss the reactivity of Gilman and Grignard reagent towards α,β-unsaturated aldehyde.

2) Explain the oxidation of toluene by alkaline $KMnO_4$ with mechanism.

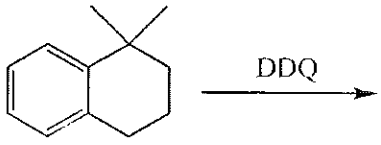
B) Answer the following questions. [06]

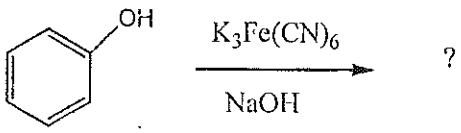
1) Write a note on Moffatt oxidation.

2) Explain the Woodward hydroxylation with mechanism.

OR

B) Predict the product of the following reaction with mechanism. [06]

i) 

ii) 

Q.6. A) Write a note on: [06]

1) Birch reduction 2) Clemenson reduction

B) Answer the following questions. [06]

1) How $LiAlH_4$ and $NaBH_4$ differ in their reactivity? Explain with suitable example.

2) The product formation in TBTH reduction of haloalkanes depends on concentration of TBTH. Explain

OR

B) Answer the following questions. [06]

1) Explain the Wolf Kishner reduction with mechanism.

2) What is Green chemisty? How the use of microwave is better than conventional method of heating.