Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

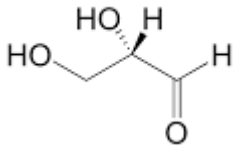
B.Sc. Summer 2017-18 Examination

Semester: 4 **Date: 15/05/2018**
Subject Code: 11105252 **Time: 10:30 am to 1:00 pm**
Subject Name: Fundamentals of Chemistry - IV **Total Marks: 60**

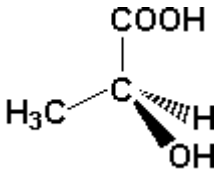
Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks) **(08)**
(a) Define isomerism. Discuss various types of isomerism.
(b) Which are the rules for assigning an R/S designation to a chiral center?

Q.1. B) Answer the following questions (Any two)
(a) Do as directed: (Each of 02 marks) **(04)**
1. Is the given isomer of gyceraldehyde, R- or S-? Answer with necessary explanation.



2. Is the given isomer of lactic acid, R- or S-? Answer with necessary explanation.



(b) Write a note on conformational analysis of butane. **(04)**
(c) Enlist various methods for the preparation of amines and discuss any one in detail. **(04)**

Q.2. A) Answer the following questions.
(a) Do as directed: **(04)**
1. Write reactions of phenylamine with halogenoalkanes.
2. Why phenylamine is a weak base?
(b) Discuss diazotization of amines with examples. **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Do as directed: (Each of 01 mark) **(03)**
1. Define enantiomers.
2. Which test is very helpful for the identification of types of amines?
a) Sandmeyer Test, b) Hinsberg Test, c) Hofmann Bromamide Reaction
3. Define chiral carbon.

(b) Discuss optical activity. **(03)**
(c) Write a note on Sandmeyer reaction. **(03)**

Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) **(08)**
(a) Give the reason for difference in boiling points of primary, secondary and tertiary amines.
(b) Discuss nomenclature of amines with examples.

Q.3. B) Answer the following questions (Any two)
(a) Do as directed: (Each of 02 marks) **(04)**
1. Give the structures of 1) Formic acid, 2) o-toluic acid
2. Write a mechanism about the conversion of carboxylic acid to anhydrides.

(b) Discuss the reactions of phenylamine with a) halogenoalkanes and b) acyl chlorides **(04)**
(c) Write a note on synthesis of carboxylic acids from alkyl benzenes. **(04)**

Q.4. A) Answer the following questions.
(a) Do as directed: (Each of 02 marks) **(04)**
1. How to synthesize carboxylic acid from primary alcohol?
2. Discuss decarboxylation of carboxylic acid.

(b) Enlist the names of various reactions of carboxylic acids. Discuss any one of them in detail. **(04)**

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

(a) Do as directed: (Each of 01 mark) **(03)**

1. Define meso compound.
2. Aniline cannot be prepared industrially. True or False?
3. Enantiomers are achiral. True or False?

(b) Discuss Hell Volhard Zelinsky Reaction. **(03)**

(c) How carboxylic acid converts to acyl chloride? **(03)**