V. P. AND R. P. T. P. SCIENCE COLLEGE
VALLABH VIDYANAGAR
B. Sc. INTERNAL EXAMINATION-2018 (III[rd] SEMESTER)
SUBJECT : ORGANIC CHEMISTRY
COURSE CODE : US03CCHE01

DATE : 04-10-2018 **TIME : 3.00 p.m. TO 5.00 p.m.**
DAY : THURSDAY **TOTAL MARKS : 50**

Q. 1 Choose the correct option for the following 8

(i) Resolution process is :
(a) Very nearer to racemization (b) Similar to bond rotation in conformation
(c) Similar to optical purity (d) Opposite to racemization.

(ii) 1 dm is equal to :
(a) 100 cm (b) 10 cm (c) 10 meter (d) 0.10 cm.

(iii) Which of the following is use as a de-icing fluid for aeroplane wings ?
(a) Glycerol (b) Ethylene glycol (c) Ethanol (d) Ethylene oxide.

(iv) Which of the following compound is used as an excellent humectant ?
(a) Ethanol (b) Ethylene glycol (c) Glycerol (d) Nitroglycerine.

(v) Amide compound react with Br_2/NaOH to give :
(a) 1° amine (b) Carboxylic acid (c) Alkane (d) Anilide.

(vi) Claisen condensation give :
(a) α -Keto acids (b) β-Keto ester (c) α-Keto ester (d) β-hydroxy ketone.

(vii) Which of the following compound is strongest acidic in nature ?
(a) t-butyl alcohol (b) Cyclohexanol (c) Phenol (d) Acetic acid.

(viii) Which of the following compound is possessed pain-killer and fever killer properties ?
(a) Thymol (b) Piperin (c) α-Terpineol (d) Phenacetin.

Q. 2 ANSWER THE FOLLOWING (ANY FIVE) 10

(i) The boat form is not a conformer, but a transient existence between two conformations.
(Ii) In conformational analysis of cyclohexane, tert-butyl group is considered as holding group.
(iii) Aldehydes are more reactive than ketones towards nucleophilic reaction.
(iv) Phosporus ylides are used in Wittig reaction.
(v) α-Chloroacetic acid is stronger acid than acetic acid.
(vi) o-Nitrophenol is volatile in steam but p-nitrophenol does not.
(vii) Give synthesis and uses of ethylene glycol.
(viii) Give the limitations of Grignard reaction.

Q. 3 ANSWER THE FOLLOWING

(a) Arrange the stability order of the following conformations of n-butane and explain your answer. 4

(a) Staggered **(b)** Gauche **(c)** Eclipsed

(b) Draw all conformations of 1,2-dimethylcyclohexane and comment on their stability and indicate the pair of conformation which are resolvable and non-resolvable. 4

OR [P.T.O.]

Q. 3 ANSWER THE FOLLOWING

(a) Arrange the stability order of the following conformations of cyclohexane and explain your answer. 4

(a) Boat (b) Chair (c) Twist-boat.

(b) Stereochemistry of free radical chlorination of optically active compound proceeds with racemization. 4

Q. 4 ANSWER THE FOLLOWING

(a) Arrange the increasing boiling point order of following molecules and give detail explanations for your answer. 4

(a) Alkane (b) Alcohol (c) Water.

(b) Draw at least **FIVE** isomeric structures of alcohols having molecular formula $C_5H_{12}O$ and give their **IUPAC** name. 4

OR

Q. 4 ANSWER THE FOLLOWING

(a) Arrange the decreasing acidity order of following molecules and give detail explanation for your answer. 4

(a) ROH (b) H_2O (c) NH_3

(b) Give the synthesis of 3-methyl-1-butene by using isobutyl alcohol and methanol. 4

Q. 5 ANSWER THE FOLLOWING

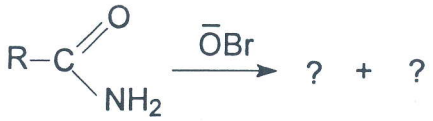
(a) Give the synthesis of 2-ethyl-1-hexanol from acetaldehyde using aldol condensation. 4

(b) Draw the structure of all isomeric aliphatic amines having molecular formula $C_4H_{11}N$ and classify them as 1^0, 2^0 and 3^0 and how can you distinguish them. 4

OR

Q. 5 ANSWER THE FOLLOWING

(a) Complete the following reaction and give appropriate detail stepwise mechanism. 4

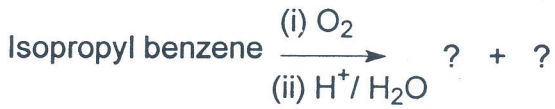


(b) Aliphatic amines are stronger base than aromatic amines. and ammonia. 4

Q. 6 ANSWER THE FOLLOWING

(a) What is transesterification ? Give mechanism of acid catalyzed transesterification. 4

(b) Complete the following reaction and give appropriate detail stepwise mechanism. 4



OR

Q. 6 ANSWER THE FOLLOWING

(a) Carboxylic acids are stronger acid than phenol. 4

(b) Give detail stepwise reaction mechanism of Gatterman synthesis. 4

THE END

There is no short cut, except hard work with understanding to excel in examination.