V. P. AND R. P. T. P. SCIENCE COLLEGE
VALLABH VIDYANAGAR
B.Sc. (SEMESTER-V) INTERNAL TEST-2016
SUBJECT : ORGANIC CHEMISTRY (US05CCHE01)
TIME : 11.00 a.m. to 12.30 p.m. DATE : 29-09-2016 TOTAL MARKS : 25

Q. 1 Choose the correct option for the following 03

(i) Which of the following compound have the properties of secondary aliphatic amine ?

(a) Pyridine (b) Piperidine (c) Methyl amine (d) Pyrrole.

(ii) How many NMR signals would you expect from allyl alcohol ?

(a) 3 (b) 4 (c) 5 (d) 6.

(iii) Which of the following is the example of co-polymer ?

(a) PVC (b) Plexiglas (c) Orlon (d) SBR.

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Q. 2 ANSWER THE FOLLOWING (ANY TWO) 04

(i) Give the synthesis of β-aminopyridine from β-picoline.

(ii) Give the various aspects of CMR spectroscopy.

(III) Write the chemical structure of following synthetic polymer with their most likely monomer.

(a) Saran **(b)** Carbowax.

Q. 3 ANSWER THE FOLLOWING 06

(i) Discuss why **nucleophilic** substitution reaction in **pyridine** is preferred at the 2- and 4-positions.

(ii) Arrange the following compounds in increasing basicity order and give detail explanation of your answer.

(a) Imine **(b)** Amine **(c)** Nitrile.

OR

Q. 3 ANSWER THE FOLLOWING 06

(i) Why electrophilic substitution reaction in pyrrole occurs at carbon atom and not on hetero atom.

(ii) Give the synthesis of 5,6-Benzoquinoline from 2-aminonaphthalene and glycerol by Skraup synthetic route.

Q. 4 ANSWER THE FOLLOWING 06

(i) Molecular formula : C_4H_6O

CMR (δ, ppm) : **(a)** 3.4, Quartet **(b)** 50.8, Triplet
(c) 77.9, Singlet **(d)** 81.6, Singlet .

NMR (δ, ppm) : **(a)** 2.0, 3H, Singlet **(b)** 1.8, 1H, Singlet **(c)** 4.1, 2H, Singlet.

(ii) **Molecular formula : $C_9H_{10}O_2$**

NMR (δ, ppm) : (a) 7.5, 4H, Quartet **(b)** 3.9, 3H, Singlet **(c)** 2.5, 3 H, Singlet .

IR (Cm^{-1}) : 3000, 2900, 1670, 1598, 1500, 1450, 1375, 1258, 1171,1021, 833.

OR

Q. 4 ANSWEP THE FOLLOWING 06

(i) **Molecular formula : C_9H_{10}**

IR (CM^{-1}) : 3100, 2950, 1650, 1600, 1500, 1450, 1375, 890, 760-770.

NMR (δ, ppm) : **(a)** 7.4, 5H, Complex **(b)** 5.35, 1H, Singlet

(c) 5.1, 1H, Singlet **(d)** 2.10, 3H, Singlet.

(ii) Discuss the proton-coupled and proton-decoupled CMR spectrum of sec-butyl bromide.

Q. 5 ANSWER THE FOLLOWING 06

(i) What are dienes ? Just classify the following dienes into appropriate class.

(a) 2,4-hexadiene **(b)** Allene **(c)** 1,4-pentadiene.

(ii) What is coordination polymerization ? Explain the importance of Ziegler-Natta catalyst in coordination polymerization.

OR

Q. 5 ANSWER THE FOLLOWING 06

(i) Discuss the addition of HBr to 1,3-butadiene at -80^0C and at 40^0C temperature with potential energy diagram.

(ii) Give the distinguishing features of addition polymerization and condensation polymerization.

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

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