V. P. AND R. P. T. P. SCIENCE COLLEGE
VALLABH VIDYANAGAR
B. Sc. INTERNAL EXAMINATION- 2013 (Vth SEMESTER)
SUBJECT : ORGANIC CHEMISTRY
COURSE CODE : US05CCHE01

DATE : 30-09-2013 TIME : 3.30 p.m. TO 5.00 p.m.
DAY : MONDAY TOTAL MARKS : 30

Q. 1 Choose the correct option for the following 6

(i) Nitrogen of the pyridine shows:

(a) SP hybridization (b) sp^2 hybridization (c) sp^3 hybridization (d) sp^4 hybridization.

(ii) Which of the following oxidative product of picoline is known as Vitamine.

(a) 2-methylpyridine (b) 3-methylpyridine (c) 4-methylpyridine (d) None of these.

(iii) Which of the following is the example of isolated diene ?

(a) 2,4-hexadiene (b) 1,2-propadiene (c) 1,4-pentadiene (d) 1,3-pentadiene.

(iv) Which of the following is the monomeric unit of neoprene ?

(a) Chloroprene (b) Isoprene (c) 1,3-butadiene (d) Terephalic acid.

(v) Which of the following compound is use as diluent in detergent ?

(a) Sodium silicate (b) CMC (c) Sodium carbonate (d) Sodium tripolyphosphate.

(vi) Which of the following compound is bicyclic halogenated insecticide ?

(a) BHC (b) Baygon (c) DDT (d) Heptachlor

Q. 2 ANSWER THE FOLLOWING (ANY THREE) 6

(i) Explain the structure of pyridine.

(Ii) Give the preparation of furan from pentosan. [P.T.O.]

(iii) Natural rubber is an elastomer whereas gutta-percha is highly crystalline and non-elastic.

(iv) What is meant by co-polymer ? Give only names of various class of co-polymer.

(v) Give the comparison of soap and detergent.

(vi) Give the synthesis and applications of detergent of ampholytic class.

Q. 3 ANSWER THE FOLLOWING 6

(I) Nucleophilic substitution reaction in pyridine is preferred at the 2- and 4-positions.

(ii) Give the mechanism of Skraup synthesis for quinoline.

OR

Q. 3 ANSWER THE FOLLOWING 6

(i) Electrophilic substitution reaction in pyrrole is preferred at α- position rather than β-Possition.

(ii) Give the reaction mechanism of Knorr-pyrrole synthesis.

Q. 4 ANSWER THE FOLLOWING

(i) Explain the mechanism of coordination polymerization and discuss its advantages. 3

(ii) Discuss the addition of HCl to 2,4-hexadiene. 3

OR

Q. 4 ANSWER THE FOLLOWING

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

(ii) What is sacrificial hyperconjugation?. Why propylene is 2.7 Kcal more stable than ethylene. 3

Q. 5 ANSWER THE FOLLOWING

(i) Discuss the classification of detergent on the basis of ionization into water. 3

(ii) Give the synthesis and applications of halogenated insecticide contain chloral moiety. 3

OR

Q. 5 ANSWER THE FOLLOWING

(i) Give the advantages of the organophosphorus compounds as insecticide. 3

(ii) Give the synthesis and applications of perfume use in electroplating. 3

THE END