

V. P. AND R. P. T. P. SCIENCE COLLEGE
VALLABH VIDYANAGAR
B. Sc. INTERNAL EXAMINATION- 2013 (IIIrd SEMESTER)
SUBJECT : ORGANIC CHEMISTRY
COURSE CODE : US03CCHE01

DATE : 3-10-2013

TIME : 1.00 p.m. TO 2.30 p.m.

DAY : THURSDAY

TOTAL MARKS : 30

Q. 1 Choose the correct option for the following

6

(i) Which of the following statements is false about enantiomers ?

- (a) rotate plane-polarised light (b) are superimposable mirror images
(c) are non- superimposable mirror images (d) have the same melting point.

(ii) An optically active compound :

- (a) must contain at least four carbons (b) when in solution rotate the plane of polarised light (c) must always contain an asymmetric carbon atom (d) in solution always give a negative reading in polarimeter.

(iii) The carbon atom of carbonyl group is :

- (a) SP hybridized (b) sp^2 hybridized (c) sp^3 hybridized (d) none of these.

(iv) Amide compounds react with $Br_2 / NaOH$ to give :

- (a) 1^0 amines (b) Anilides (c) Alkanes (d) Carboxylic acid.

(v) Which of the following compound is strongest acidic in nature ?

- (a) Phenol (b) Cyclohexanol (c) t-butyl alcohol (d) Acetic acid.

(vi) Which of the following compound is possessed analgesic and antipyretic properties ?

- (a) Piperine (b) Hexestrol (c) Thymol (d) Phenacetin.



Q. 2 ANSWER THE FOLLOWING (ANY THREE)

6

(i) The priority order of the groups is $-CN > -CHO > -CH(CH_3)_2$.

(ii) Staggered conformation of ethane is more stable than eclipsed conformation.

(iii) Acetoacetic ester is a much stronger acid than ordinary esters.

(iv) How can you distinguish 1^0 , 2^0 and 3^0 amines.

(v) α -Chloroacetic acid is stronger acid than β -chloroacetic acid.

(vi) o-Nitrophenol is volatile in steam but p-nitrophenol does not.

[P.T.O.]

Q. 3 ANSWER THE FOLLOWING

- (I) What is conformation ? By using Newman formula, draw various conformations of n-butane and arrange their stability and explain your answer. 3
- (ii) Cis-1,2-cyclopentane diol cannot be resolved whereas trans-1,2-cyclopentane diol is resolvable. 3

OR

Q. 3 ANSWER THE FOLLOWING

- (i) Trans-1,2-dimethylcyclohexane exist as a pair of conformational enantiomer but cis isomer exist as a pair of conformational enantiomer. 3
- (ii) Twist-boat form is more stable than boat form. 3

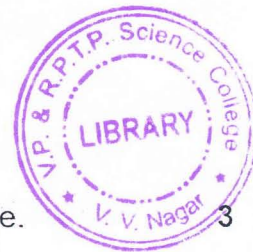
Q. 4 ANSWER THE FOLLOWING

- (i) Give the synthesis of 2-ethyl-1-hexanol from acetaldehyde using aldol condensation. 3
- (ii) Draw the structure of all isomeric aliphatic amines having molecular formula $C_4H_{11}N$ and classify them as 1° , 2° and 3° . 3

OR

Q. 4 ANSWER THE FOLLOWING

- (i) Give stepwise detail mechanism of acid catalysed halogenation of ketone. 3
- (ii) Describe the action of nitrous acid on aliphatic and aromatic amines. 3



Q. 5 ANSWER THE FOLLOWING

- (i) Give the synthesis of 5-methyl-2-hexanone from acetoacetic ester.. 6
- (ii) Give detail stepwise mechanism of rearrangement of Cumene hydroperoxide.

OR

Q. 5 ANSWER THE FOLLOWING

- (i) Phenol is stronger acid than alcohol. 6
- (ii) In alkaline hydrolysis of ester, bond-cleavage occurs between oxygen and acyl group but not between oxygen and alkyl group.

THE END

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