

V. P. AND R. P. T. P. SCIENCE COLLEGE
VALLABH VIDYANAGAR
B.Sc. INTERNAL EXAMINATION-2017 (IInd SEMESTER)
SUBJECT : ORGANIC CHEMISTRY
COURSE CODE : US02CCHE01

DATE : 08-03-2017

TIME : 01.30 p.m. TO 2.30 p.m.

DAY : WEDNESDAY

TOTAL MARKS : 25

Q. 1 Choose the correct option from the following **3**

- (i) Which type of H-atoms are replaced during the monochlorination of isopentane in presence of light ?
(a) 1^o and 2^o (b) 2^o and 3^o (c) 1^o, 2^o and 3^o (d) 1^o and 3^o.
- (ii) Which of the following compounds give acetic acid and acetone molecules upon reaction with cold KMnO₄/NaIO₄ ?
(a) Isobutene (b) 1-butene (c) 1-propene (d) 2-methyl-2-butene.
- (iii) Which of the following molecules has great tendency to undergo S_N1 reaction ?
(a) t-butyl bromide (b) Methyl bromide
(c) n-butyl bromide (d) Neopentyl bromide.

Q. 2 Answer the following (ANY TWO) **4**

- (i) Give successfulness and unsuccessfulness of Baeyer angle strain theory.
- (ii) Why ethane is weaker acid than acetylene.
- (iii) Why high concentration of nucleophile favours the S_N2 reaction and low concentration of nucleophile favours the S_N1.

Q. 3 Answer the following

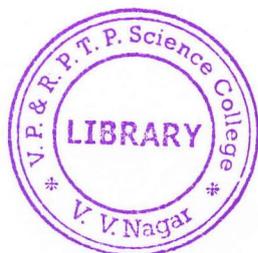
- (a) Complete the following reaction and give detail stepwise mechanism. **3**
$$\text{Alkane (RH)} + \text{Cl}_2 + h\nu \rightarrow ? + ?$$
- (b) Arrange the following molecules in the increasing order of their stability according to Baeyer strain theory and explain your answer. **3**
(a) Cyclopropane (b) Cyclopentane (c) Cyclohexane.

OR

Q. 3 Answer the following

- (a) Calculate the percentage of all isomeric products obtained upon monochlorination of n-pentane. The relative reactivity of 1^o, 2^o, and 3^o H-atoms are 1: 3.8 : 5 respectively. **3**
- (b) Give the synthesis of 2,2-dimethyl hexane from tert.-butyl chloride and appropriate alkyl halide by using Corey-House synthetic route. **3**

[P.T.O.]



- Q. 4 Answer the following
- (a) Give the synthesis of 2-butyne from acetylene. 3
- (b) Give detail stepwise reaction mechanism for dimerization of isobutylene. 3

OR

- Q. 4 Answer the following
- (a) Give detail stepwise reaction mechanism for halohydrin formation. 3
- (b) Trans-2-butene is more stable than cis-2-butene. 3

- Q. 5 Answer the following
- (a) Neopentyl bromide react with ethanol to give ethyl tert.-pentyl ether and not ethyl neopentyl ether. 3
- (b) m-bromoanisole and o-bromoanisole react with amide ion to give same product m-anisidine. 3

OR

- Q. 5 Answer the following
- (a) Complete the following reaction and give detail stepwise mechanism. 3
o-Fluoroanisole + Phenyl lithium + H₂O → ?
- (b) Give the difference between S_N1 and S_N2. 3

THE END

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

