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21263

B. Sc. (Hons.) Chemistry 2nd Semester Examination – May, 2019

ORGANIC CHEMISTRY

Paper : CH(H)-203

Time : Three Hours] *[Maximum Marks : 40*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, Question No. 1 is ***compulsory***. Select ***one*** question from each Section.

1. (a) Which alkene on ozonolysis gives methanal. $1 \times 8 = 8$

(b) Define Octane Number.

(c) Name the products formed on combustion of Ethene.

(d) Which type of reaction is generally shown by alkyl halides.

(e) How can you convert chlorobenzene into Biphenyl ?

(f) Define Polynuclear Hydrocarbon with an example.

(g) Define Baker-Nathan effect.

(h) Define Annulenes.

P. T. O.

SECTION – I

2. (a) Do the following conversions : 4, 4

(i) Ethene into Ethanol

(ii) 1, 2-dichloroethane into Ethene

(iii) chloroethane into Ethene

(iv) Ethene into chloroethane

(b) What will happen when :

(i) 1, 2-dichloroethane reacts with Zn-dust, Heat

(ii) Ethene reacts with cold $KMnO_4$

(iii) Propene reacts with Hot $KMnO_4$

(iv) But-2-ene undergo ozonolysis

3. (a) Explain the mechanism of : 4, 2, 2

(i) Dehydration of 3,3-dimethylbutan-2-ol in acidic medium.

(ii) Bromination of But-2-ene.

(b) What is the cause of formation of Coal and Petroleum in the earth crust ?

(c) What is the Octane number of :

(i) 2,2,4-trimethylpentane

(ii) n-heptane

SECTION – II

4. (a) Explain the following : 6, 2

(i) Pschorr synthesis of Phenanthrene

(ii) Synthesis of Anthracene

(b) Explain the reactivity order among Naph and benzene towards electrophilic sub reaction.

5. (a) Do the following conversions :
   (i) Phenylacetylene into acetophenone
   (ii) Propyne into Acetone
   (iii) Ethyne into buta-1,3-diene
   (iv) Ethene into Ethanal
   (v) Buta-1,3-diene into Cyclohexene
   (vi) Propyne into But-2- yne

   (b) What will happen when :
   (i) 1,1 ,2,2-tetrachloroethane reacts with Heat
   (ii) 1,2- dichloroethane reacts with Alc. K

SECTION – III

6. (a) Explain the mechanism of :
   (i) Nitration of benzene showing the fo of both σ and π-complex
   (ii) Birch reduction

   (b) Explain the Huckel Rule with suitable exam

7. (a) How can you convert :
   (i) Chlorobenzene into toluene in two ways
   (ii) Benzene into toluene in two different

(b) Explain the mechanism of Suphonation of benzene showing the formation of both σ and π-complex.

SECTION – IV

8. (a) How can you convert Chloromethane into : 2, 3, 3
   (i) Ethane
   (ii) Propane.

   (b) Explain the Elimination-addition mechanism of nucleophilic aromatic substitution reaction in chlorobenzene using $KNH_2 / NH_3(l)$.

   (c) What happens when Chloroethane reacts with :
   (i) Aq. KOH
   (ii) Alc. KOH
   (iii) Moist Ag_2O

9. (a) Why chloroform should be filled up to brim and stored in brown bottles ? 2, 2, 2, 2

   (b) What happens when Propene reacts with :
   (i) Br_2 /U.V. light
   (ii) HBr/NBS

   (c) How can you prepare :
   (i) DDT
   (ii) BHC

   (d) What happens when Chloroform reacts with :
   (i) phenol in presence of KOH
   (ii) O_2 in presence of light