(i) Printed Pages : 7] Roll No. .....

(ii) Questions : 9] Sub. Code : 0 2 5 1

Exam. Code : 0 0 0 3

B.A./B.Sc. (General) 3rd Semester Examination

1127

CHEMISTRY

(X : Organic Chemistry-A)

(Same for B.Sc. Microbial and Food Technology)

Time : 3 Hours] **[Max. Marks : 22**

Note :– Attempt *five* questions in all, including Question No. **9** (Section–E) which is compulsory and selecting *one* question from each Section–A to Section–D.

Section–A

1. (a) Alkylphenyl ether with structure $PhOCH_2CH = CHC_2H_5$ on heating undergoes Claisen rearrangement. Give the structure and IUPAC name of the product formed by the rearrangement.

(b) Why phenols are more acidic than alcohols ? 2,2

2. (a) What is Fries rearrangement ? Explain with mechanism.

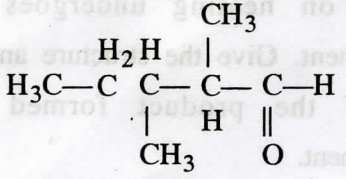
(b) The nucleophilic substitution occurs readily in haloalkanes, whereas, nucleophilic substitution in alcohols occurs in the presence of strong acids as catalysts. Explain. 3,1

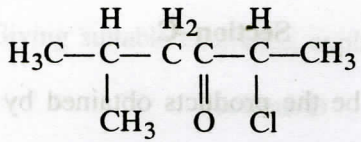
Section–B

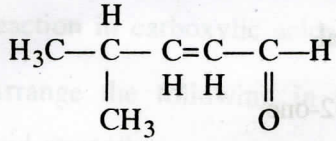
3. (a) Using lithium dialkylcuprate (Gilman reagent), how will you prepare acetone ?

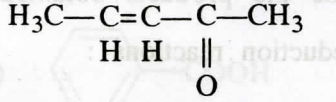
(b) Give the IUPAC names for the following compounds :

(i)



(ii) 

(iii) 

(iv)  2,2

4. (a) Why reaction of Grignard reagent with nitriles is considered to be better method for the preparation of carbonyl compounds as compared to synthesis from acid chlorides ?

(b) How will you prepare the following carbonyl compounds using suitable Grignard reagents :

(i) Pentan-3-one

(ii) Butanal 2,2

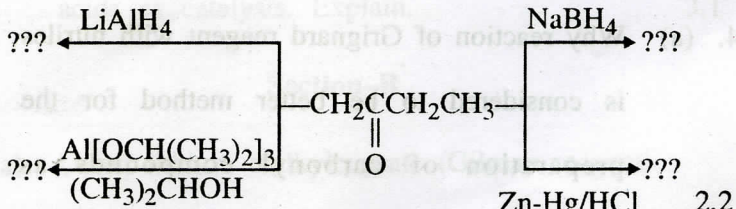
Section–C

5. (a) What will be the products obtained by Baeyer-Villiger rearrangement of :

(i) Propanal

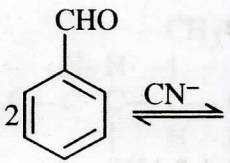
(ii) Pentan-2-one

(b) What will be the products obtained by the following reduction reactions :



2,2

6. (a) Complete the following reaction and give the mechanism of its formation :

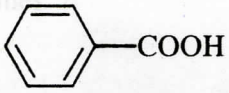


(b) Giving suitable examples, explain Wittig reaction. 2,2

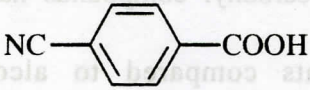
Section–D

7. (a) Explain the mechanism of Hell-Volhard-Zelinsky reaction in carboxylic acids.

(b) Arrange the following in increasing order of acid strength :

(i) 

(ii) 

(iii) 

(iv)  2,2

8. (a) How will you synthesize citric acid from glycerol ?

(b) What is order of acidic strength of ortho, meta and para substituted benzoic acids ? Explain this order.

Section–E 1 each

9. (a) Why are polyhydric alochols generally viscous liquids ?

(b) Why is o-nitrophenol more volatile compared to p-nitophenol ?

(c) Why do the carbonyl compounds have lower boiling points compared to alcohols of comparable molecular mass ?

(d) Explain whether the addition of HCN will be faster with propanal or propanone.

(e) In carboxylic acids, there are two different C—O bond lengths, however, the carboxylate ion has same C—O bond length, explain.

(f) Why do acid amides show less basicity compared to amines ?