Model Question Paper

Carbonyl Compounds - Part III

12th Standard

Chemistry

Reg.No. : | | | | | | |

I.Answer all the questions.

II.Use blue pen only.

Time : 01:30:00 Hrs

Total Marks : 85

Part-A

5 x 1 = 5

1) The melting points of aldehydes and ketones tend to

(a) decresase with increasing molecular mass (b) increase with increasing molecular mass (c) remain unchanged with increasing molecular mass

(d) to remain constant

2) Aldehydes are isomeric with

(a) alcohols (b) ketones (c) esters (d) ethers

3) The general formula for aldehydes and ketones is

(a) $C_nH_2 +_2 O$ (b) $C_nH_{2n-2}O$ (c) $C_nH_{2n}O$ (d) $C_nH_{2n+3}O$

4) The suitable method for obtaining acetone is

(a) heating $CH_3CH_2CH_2OH$ with acidified $NaCr_2O_7$ (b) Passing isopropayl alchol over heated copper (c) Oxidation of n-propane with concentrated HNO_3

(d) Heating $CH_3CH = CH_2$ with dilute H_2SO_4

5) Chloral belongs to a group of

(a) alcohol (b) aldehyde (c) ketone (d) methanal

Part-B

5 x 3 = 15

6) Predict the formulae of the products in the following reactions. (i) $CH_3COCH_3 + HCN \longrightarrow ?$ (ii) $C_6H_5COCH_3 + NH_2OH \longrightarrow ?$

7) Formaldehyde and benzaldehyde give Cannizaro reaction but acetaldehyde does not -account for this.

8) Give two tests for aldehydes.

9) Mention the industrial uses of formaldehyde.

10) How will you distinguish between formaldehyde and acetaldehyde ?

Part-C

9X5=45

11) An organic compound 'A'(C_2H_4O) with HCN gives 'B' (C_3H_5ON) 'B' on hydrolysis gives 'C'($C_3H_6O_3$) 'C 'is an optically active compound. 'A' also undergoes iodoform test. What are A, B and C? Explain the reactions.

12) An organic compound 'A'($C_5H_{10}O$) does not reduce Tollen's reagent. It is a linear compound and undergoes iodoform test. On oxidation 'A' gives 'B'($C_2H_4O_2$) and 'C'($C_3H_6O_2$) as the major product. Identify A,B and C. Explain the reactions.

13) An organic compound 'A'(C_7H_6O) reduces Tollen's reagent With acetic anhydride in the presence of sodium acetate. 'A' gives an α, β - unsaturated acid 'B'($C_9H_8O_2$). With acetone in the presence of alkali 'A' gives 'C'($C_{10}H_{10}O$) What are 'A','B' and 'C'? Explain the reactions.

14) Explain the characteristics of aldol condensation

15) How do formaldehyde and benzaldehyde react with ammonia?

16) Using Popott's rule write down the type of cleavage and products obtained during the oxidation of unsymmetrical ketones.

17) Explain the reduction property of aldehyde with two equations.

18) Discuss the mechanism involved in Cannizaro's reaction.

19) Explain the mechanism involved in Claisen reaction.

Part-D

2X10=20

20) a) Write two methods of preparing cinnamic acid from benzaldehyde.

b) Distinguish between formaldehyde and acetaldehyde.

21) a) What happens when acetone is treated with dry HCL?

b) Compare the reaction of acetaldehyde and acetone.

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