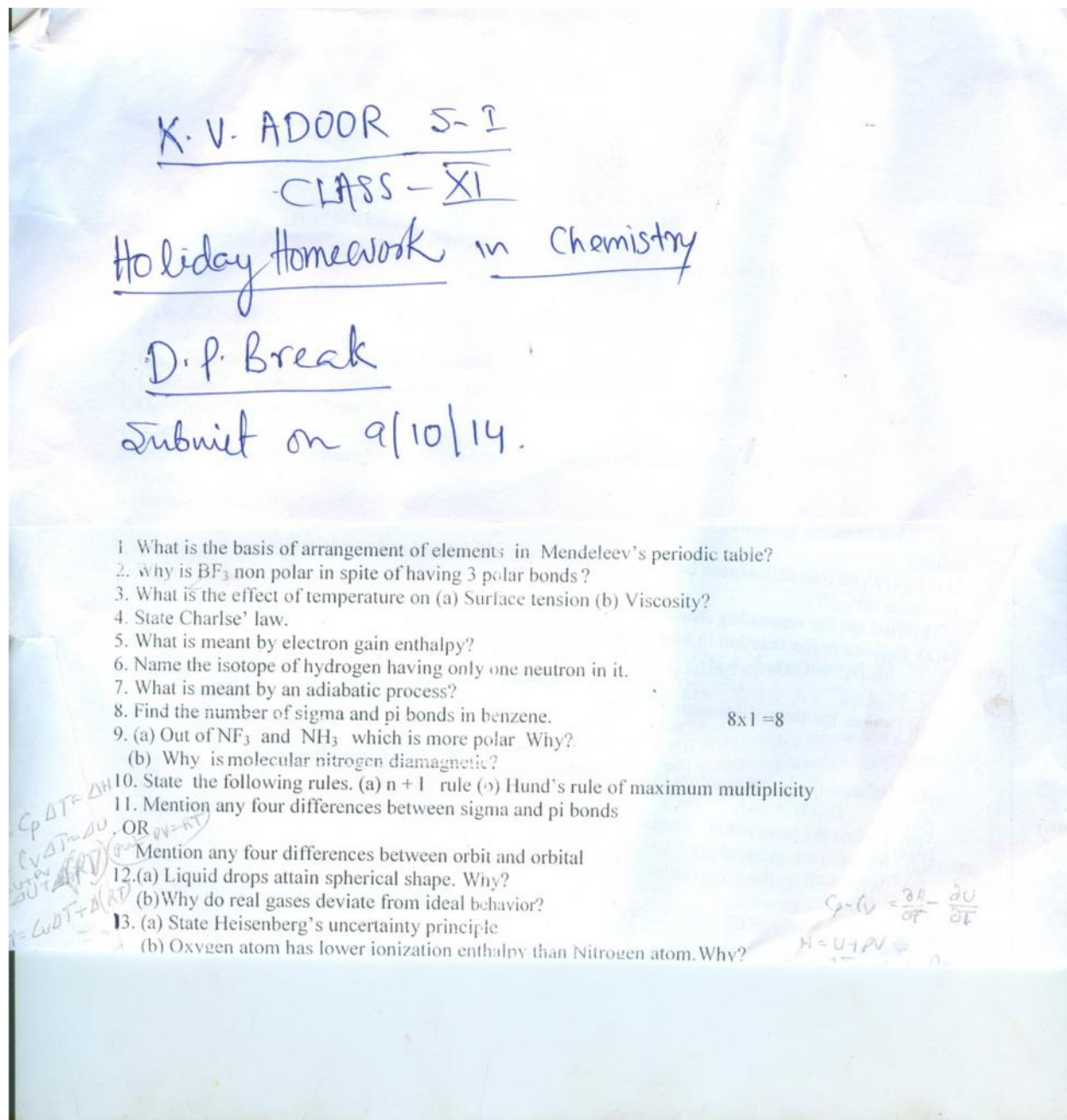


SUBJECT :CHEMISTRY

CLASS:XI



NCERT Exercise questions from the chapter ' Chemical Bonding and Molecular structure.

WORK SHEET - (2)
HOLIDAY HOMEWORK - AUTUMN BREAK - XII
 Sub (CHEMISTRY)

GENERAL INSTRUCTIONS

Answer all questions.

I. Write chemical equations for the following named reactions.

- a) Gattermann-Koch reaction.
- b) Rosenmund's reduction
- c) Schotten-Baumann reaction
- d) Fittig's reaction
- e) Williamson's synthesis.

[5]

II. Complete the following reactions

- a) $\text{CH}_3\text{COCH}_2\text{CH}_3 \xrightarrow[\text{glycolic acid}]{\text{NH}_2\text{-NH}_2}$
- b) $\text{CH}_3\text{CH}_2\text{COOH} \xrightarrow{\text{I}_2/\text{P}}$
- c) $\text{C}_6\text{H}_5\text{CHO} \xrightarrow{\text{alc. NaOH}}$
- d) $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl} \xrightarrow{\text{AgF}}$
- e) $\text{C}_6\text{H}_5\text{CHO} \xrightarrow{\text{KMnO}_4/\text{OH}^-}$

[5]

III. Name the reagents used in the following reactions

- a) Primary aliphatic amine to alcohol
- b) Alcohols to iodalkane
- c) Acid halide to ketone
- d) Phenol to p-bromophenol.
- e) Grignard's reagent to carboxylic acid
- f) Acetic acid to acetic anhydride
- g) Phenol to salicylaldehyde.
- h) Benzamide to aniline
- i) Benzene diazonium chloride to benzene.
- j) Ethene to formaldehyde.

[5]

IV. Predict the products A, B, C & D in the following

- 1) $\text{C}_6\text{H}_5\text{N}_2\text{Cl} \xrightarrow{\text{CuCN}} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B} \xrightarrow[\text{heat}]{\text{NH}_3} \text{C} \xrightarrow{\text{P}_2\text{O}_5} \text{D}$
- 2) $\text{CH}_3\text{COONa} \xrightarrow[\text{O}]{\text{NaOH, CO}} \text{A} \xrightarrow{\text{Cl}_2/h\nu} \text{B} \xrightarrow{\text{KCN}} \text{C} \xrightarrow{\text{Ni/H}_2} \text{D}$
- 3) $\text{CH}_3\text{COCl} \xrightarrow{\text{O}} \text{A} \xrightarrow{\text{Zn-Hg/HCl}} \text{B} \xrightarrow{[\text{O}]} \text{C} \xrightarrow{\text{H}_2\text{SO}_4/\text{SO}_2} \text{D}$
- 4) $\text{C}_6\text{H}_5\text{CHO} \xrightarrow{\text{Cl}_2/\text{FeCl}_3} \text{A} \xrightarrow[623\text{K, 1-2cm}]{\text{NaOH}} \text{B} \xrightarrow{\text{Zn}} \text{C} \xrightarrow[\text{Con. H}_2\text{SO}_4]{\text{Con. HNO}_3} \text{D}$
- 5) $\text{HCHO} \xrightarrow{\text{CH}_3\text{MgX}} \text{A} \xrightarrow{\text{H}_2\text{O}} \text{B} \xrightarrow{\text{AgCN}} \text{C} \xrightarrow{\text{Ni/H}_2} \text{D}$

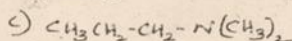
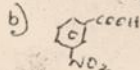
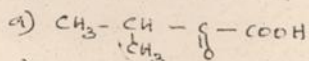
[5]

V. Account for the following

- 2° amines are stronger bases than 1° amine.
- Carboxylic acid do not give characteristic reactions of carbonyl group.
- Aldehydes are more reactive than ketones.
- Phenols are more acidic than alcohols.
- p-dichlorobenzene melts at a higher temperature

[5]

VI. Write the IUPAC names of the following



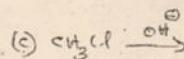
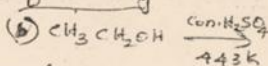
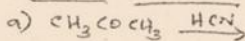
[3]

VII. Arrange the following compound in increasing order of their property mentioned

- $\text{C}_6\text{H}_5\text{NH}_2$, CH_3NH_2 , , (Basic strength)
- Benzoic acid, 4-nitrobenzoic acid, 2,4-dinitrobenzoic acid, 4-methoxybenzoic acid (Acid strength)
- Pentan-1-ol, n-butane, pentanal, ethoxy ethane (Boiling point)

[3]

VIII. Write the mechanism of the following



[3]

IX. How are the conversions made

- Toluene to benzyl alcohol
- Aniline to fluorobenzene
- Benzoic acid to aniline
- Nitrobenzene to phenol
- Acetaldehyde to lactic acid.

[5]

X. Distinguish the following pairs by chemical test

- chloroform and carbon tetrachloride
- Benzaldehyde and acetaldehyde
- Phenol and acetic acid
- Acetone and formaldehyde
- 1-propanol and 2-propanol.

[5]

XI. An organic compound [A] on treatment with aq. NH_3 and heating forms compound [B] which on treating with Br_2 and KOH forms a compound [C] of molecular formula $\text{C}_6\text{H}_7\text{N}$. Write the structures and IUPAC names of the compounds [A], [B] and [C]

[3]

XII. An organic compound [A] with molecular formula $\text{C}_7\text{H}_8\text{O}$ when reduced with NaBH_4 gives compound [B] which react with HBr to form compound [C] which is optically active. Identify [A], [B] and [C] and their IUPAC names.

[3]