CHEMISTRY

BOOKS - PRADEEP CHEMISTRY (HINGLISH)

APPENDIX

Identification Of Uknown Orgenic Compounds Reagents

1. Complete the following by suppling intermediates

(i) $CH_3CH_2Br \xrightarrow[ether]{Mg} A \xrightarrow{CH_3Oh} B + C$

Watch Video Solution

2. $CH_3COOH \xrightarrow{NaOH} [A] \xrightarrow[CaO]{NaOH} [B] \xrightarrow[hv]{Br_2} [C]$

Watch Video Solution

3. $CH_3Br \xrightarrow[ether]{Na} [A] \xrightarrow[hv]{Br_2} [B] \xrightarrow[ether]{Na} [C]$

Watch Video Solution

4. Complete the following by suppling intermediates

$C_6H_5CH_2CH_3 \xrightarrow[KOH\,,373K]{KMnO_4} A \xrightarrow[630K]{NaOH+CaO} B$

Watch Video Solution

5. Complete the following by suppling intermediates

$CH_3CH_2Br \xrightarrow[\Delta]{Li\,,ether} [A] \xrightarrow{C} [B] \xrightarrow{(CH_3)_2CHBr} [C]$

Watch Video Solution

6. Complete the following by suppling intermediates

$MeCH_2C \equiv -CH \xrightarrow{Na/liq.NH_3} [A] \xrightarrow{EtBr} [B]$

Watch Video Solution

7. Supply the reagents in the following sequence of reations :

(i)

$$CH_3CH_2CH_2Br \xrightarrow{(A)} CH_3CH=CH_2 \xrightarrow{(B)} CH_3CHBr-CH_2Br \xrightarrow{(C)}$$

Watch Video Solution

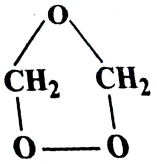
8. Supply the reagents in the following sequence of reations :

$$(ii) CH_4 \xrightarrow{[A]} CH_3Br \xrightarrow{[B]} C_6H_5CH_3 \xrightarrow{[C]} C_6H_5COOH$$

Watch Video Solution

9. Supply the reagents in the following sequence of reations :

(ii) $CH_4 \xrightarrow{[A]} CH_3Br \xrightarrow{[B]} C_6H_5CH_3 \xrightarrow{[C]} C_6H_5COOH$

(iii) $CH_2=CH_2 \xrightarrow{[A]}$  $\xrightarrow{[B]} HCHO$

(iv) $CH_3-CH=CH_2 \xrightarrow{[A]} CH_3CH_2CH_2Br \xrightarrow{[B]} C_6H_5$

View Text Solution

10. Supply the reagents in the following sequence of reations :

$(iv) CH_3 - CH = CH_2 \xrightarrow{[A]} CH_3CH_2CH_2Br \xrightarrow{[B]} C_6H_5CH_2CH_2CH_3$

Watch Video Solution

11. Complete the following reactions by supplying the products and the reagents

(i) $CH \equiv CH \xrightarrow{[A]} C_6H_6 \xrightarrow{CH_3CI,\ \text{anhyd.}\ AICI_3} [B] \xrightarrow{[C]} C_6H_5CHO$

Watch Video Solution

12. Complete the following reactions by supplying the products and the reagents

$CH_3(CH_2)_4CH_3 \xrightarrow[773K, 10-20atm]{Cr_2O_3, AI_2O_3} [A] \xrightarrow{Br_2/Fe} [B] \xrightarrow{Mg/\text{ether}} [C] \xrightarrow{D_2O} [D]$

Watch Video Solution

13. Complete the following reactions by supplying the products and the reagents

$$(CH_3)_2C = CH_2 \xrightarrow{H_2O, H_2SO_4} [A] \xrightarrow[conc.\,H_2SO_4]{C_6H_6} [B]$$

Watch Video Solution

14. Complete the following reactions by supplying the products and the reagents

$$CH_3CH = CH_2 \xrightarrow{Br} [A] \xrightarrow{Na\,/\,\text{liquid}\ \ NH_3} [B] \xrightarrow[873K]{Fe\ \ \text{tube}} [C]$$

Watch Video Solution

5 What Happens When

1. Tert-Butyl bromide is treated with sodium metal in dry ether.

Watch Video Solution

6 What Happens When

1. Benzyl bromide is treated with hydrogen in presence of Pd -C.

Watch Video Solution

7 What Happens When

1. 1-Butanol is heated with concentrated sulphuric acid at 443 k.

Watch Video Solution

8 What Happens When

1. Propene is the treadted wit $BrCCI_3$ is presence of peroxides.

Watch Video Solution

9 What Happens When

1. But -1- yne and but -2- yne are treated with dil . H_2SO_4 in presence of $HgSO_4$ at 330 K.

Watch Video Solution

10 What Happens When

1. Acetylene when treated with dilute HCl at $60^\circ C(333K)$ in presence of $HgCl_2$ produces-

Watch Video Solution

11 What Happens When

1. Styrene $(C_6H_5CH = CH_2)$ is treated with HBr presence of peroxides.

Watch Video Solution

Watch Video Solution

12 What Happens When

1. Benzene is treated with isobutyl alcohol in presence of conc. H_2SO_4

Watch Video Solution

Model Test Paper Br Section A

1. The number of electrons, protons and neutrons in a species are equal to 18, 16 and 16 respectively. Assign the proper symbol of the species.

Watch Video Solution

2. Can the absolute value of internal energy be determined ? Why or why not ?

Watch Video Solution

3. Why in the case of hydrogen and helium, the compressibility factor is always greater than 1 and increases with increase of pressure?

Watch Video Solution

4. Equal volumes of two solutions with pH=4 and pH = 10 are mixed. The pH of resulting solution will be

Watch Video Solution

5. What is the total of σ and π bonds present in vinyl cyanide?

Watch Video Solution

6. Although fluorine is more electronegative than chlorine but chlorine can be converted into chloride ion more easily as compared to fluoride

ion from fluorine . Explain.

Watch Video Solution

7. The four hydrogen atoms of ethene lie in a plane. Do you think , four hydrogen atoms of allene $(H_2C = C = CH_2)$ also lie in a plane ? Comment

Watch Video Solution

Model Test Paper Br Section B

1. A ballon is filled with hydrogen at room temperature. It will burst if pressure exceeds 0.2bar. If at I bar pressure, the gas occupies $2.27L$ volume, up to what volume can the balloon be expanded?

Watch Video Solution

2. A comound is formed by two elements M and N. The element N froms ccp and atoms of M occupy 1/3rd of tetrahedral voids. What is the formula of the compound ?

Watch Video Solution

3. Compare the relative stability of the following species and indicate their magnetic properties:

$O_2, O_2^{\oplus}, O_2^{\ominus}$ (superoxide), O_2^{-2} (peroxoide).

Watch Video Solution

4. If NaCl is doped with 10^{-3} mol percent of $SrCI_2$, what is the concentration of cation vacancy?

Watch Video Solution

5. To which orbit the electron in H atom will jump on absorbing 12.1 eV energy ?

Watch Video Solution

6. (i) Lithium has the highest ionization enthalpy among alkali metals yet it is the strongest reducing agent Why so ?

(ii) Unlike sodium carbonate ,potassium carbonate cannot be prepared by solvary ammonia process . Why is it so ?

Watch Video Solution

7. (i) $N(CH_3)_3$ is pyramidal while $N(SiH_3)_3$ is planar. Explain

(ii) InCl undergoes disproportionation but TICl does not. Explain

Watch Video Solution

8. (a) The solubility product of AgCI in water is 1.5×10^{-10} .Calculate its solubility in 0.01 NaCI aqueous solution .

(b) Calculate the pH at which $Mg(OH)_2$ begins to precipitate from a solution containing 0.10 M Mg^{2+} ions K_{sp} of $Mg(OH)_2 = 1 \times 10^{-11}$

Watch Video Solution

Model Test Paper Br Section C

1. Calcium carbonate reacts with aqueous HCl to give $CaCl_2$ and CO_2 according to the reaction:

$$CaCO_3(s) + 2HCl(aq) \rightarrow CaCl_2(aq) + CO_2(g) + H_2O(l)$$

What mass of $CaCO_3$ is required to react completely with $25mL$ of $0.75MHCl$?

Watch Video Solution

2. Arrange the following in the order of property indicated for each set:

NO_2, NO_2^+, NO_2^- (decreasing bond angle)

Watch Video Solution

3. (a) Which gases are responsible for greenhouse effect ? List some of them.

(b) What would have happened it the greenhouse gases were totally missing in the earth 's atmosphere ? Discuss.

Watch Video Solution

4. Naturally occurring boron consists of two isotopes whose atomic weight are 10.01 and 11.01. The atomic weight of the natural boron is 10.81. Calculate the percentage of each isotopes in natural boron.

Watch Video Solution

5. Calculate the energy of C-Cl bond from the following data :

$CH_4(g) + Cl_2(g) \rightarrow CH_3(g) + HCl(g) + HCl(g), \Delta H = -100.3kJ$

The bond energy of C-H, Cl- Cl and H-Cl bonds are 413, 243 and 431 kJ mol^{-1} respectively.

Watch Video Solution

6. Calculate the wave number for the longest wavelength transition in the Balmer series of atomic hydrogen.

Also calculate the wavelength of the limiting line in Balmer series.

Watch Video Solution

7. Two vessels of capactie 1.5 L and 2.0 L containing hydrogen at 750 mm pressure and oxygen at 100 mm pressure, respectivity are connected to each other through a valve. What will be the final pressure of the gaseous mixture assuming that the temperature remains constant?

Watch Video Solution

8. (a) What would be the pH of 0.1 molar sodium acetate solution , given that the dissociation constant of acetic acid is 1.8×10^{-5}

(b) The pK_a of acetic acid and pK_b of ammonium hydroxide 4.76 and 4.75 respectively . Calculate the pH of ammonium acetate solution .

Watch Video Solution

9. (a) A mixture of 1.57 mol of N_2 1.92 mol of H_2 and 8.13 of NH_3 is introduced into a 20 L reaction vessel at 500 K. At this temperature the equilibrium constant K_c for the reaction

$N_2(g) + 3H_2(g) \Leftrightarrow 2NH_3(g)$ is 1.7×10^2

Is the reaction mixture of equilibrium ? If not What is the direction of the net reaction ?

(b) In the reaction $N_2 + 3H_2 \Leftrightarrow 2NH_3$ at equilibrium helium gas is injected into the vessel without disturbing the overall pressue of the system. What will be the effect on the equilibrium ?

Watch Video Solution

10. (i) How would you explain the fact that the first ionization enthalpy of nitrogen is higher than that of oxygen but its second ionization enthaply is higher than that of nitrogen ?

(ii) Arrange Me_3N, C_5H_5N and $MeCN(Me = CH_3)$ in incresing order of electronegativity of nitrogen.

Watch Video Solution

11. (i) Write chemical equations to justify that hydrogen peroxide can fucntion as an oxidising agent as well as reducing agent both in acidic and basic media.

(ii) BF_3 exists as discrete molecules but BH_3 exists as dimer. Explain

Watch Video Solution

12. (i) Calculate the strength of 5 volume H_2O_2 solution

(ii) What is water- gas shift reaction ? What is its utility in production of

dihydrogen ?

Watch Video Solution

13. (i) Lithium on heating in air mainly forms the monoxide but not the perioxide while sodium form peroxide along with a small amount of monoxide , why so ?

(ii) All the five bonds in PCI_5 are not equivalent. Justify your answer with proper reasoning.

Watch Video Solution

14. (i) An element of group 2 form covalent oxide which is amphoteric in nature and dissolves in water to give amphoteric hydroxide . Identify the element and write chemical reaction of the hydroxide of the element with an alkali and an acid

(ii) Why does the solubility of the alkaline earth metal carbonates and sulphates in water decrease down the group ? Explain why ?

Watch Video Solution

15. (i) $[SiF_6]^{2-}$ is known whereas $[SiCI_6]^{2-}$ is not.Give possible reason.

(ii) $Bi(V)$ is a stronger oxidinsing agent than Sb(v). Explain

(iii) What happes when H_3PO_3 is heated ?

Watch Video Solution