



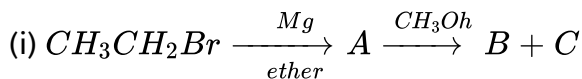
## CHEMISTRY

### BOOKS - PRADEEP CHEMISTRY (HINGLISH)

#### APPENDIX

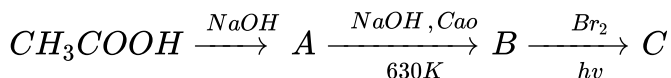
#### Identification Of Unknown Organic Compounds Reagents

1. Complete the following by supplying intermediates



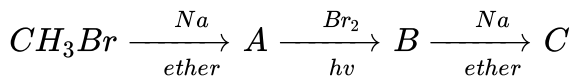
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2. Complete the following by supplying intermediates



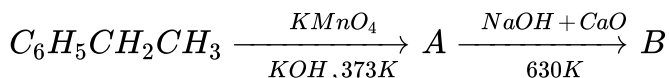
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3. Complete the following by supplying intermediates



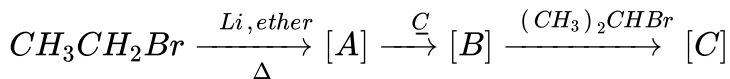
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4. Complete the following by supplying intermediates



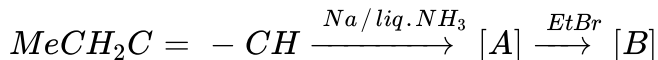
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5. Complete the following by supplying intermediates



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6. Complete the following by supplying intermediates



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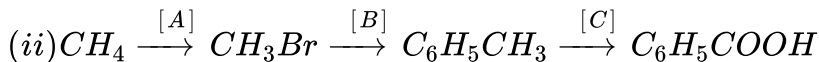
7. Supply the reagents in the following sequence of reactions :

(i)



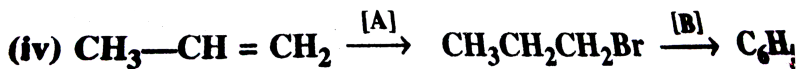
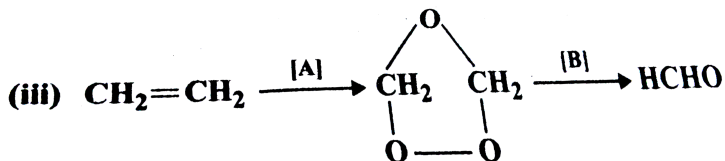
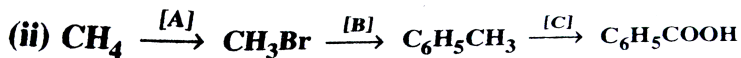
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8. Supply the reagents in the following sequence of reactions :



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



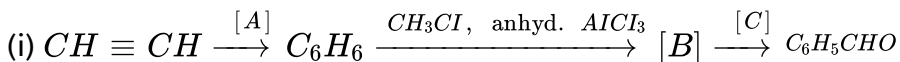
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10. Supply the reagents in the following sequence of reactions :



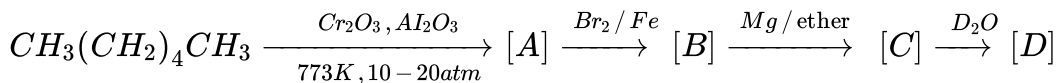
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11. Complete the following reactions by supplying the products and the reagents



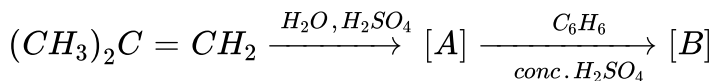
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12. Complete the following reactions by supplying the products and the reagents



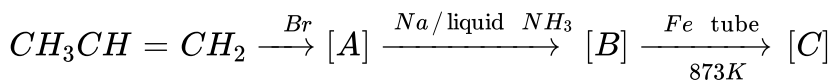
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13. Complete the following reactions by supplying the products and the reagents



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



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## 5 What Happens When

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

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## 6 What Happens When

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

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## 7 What Happens When

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

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## 8 What Happens When

1. Propene is treated with  $BrCCl_3$  in the presence of peroxides.

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## 9 What Happens When

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

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## 10 What Happens When

1. Acetylene is treated with dilute hydrochloric acid in the presence of  $HgCl_2$



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## 11 What Happens When

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



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## 12 What Happens When

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



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## 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.

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

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

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4. Equal volumes of two solutions with  $\text{pH}=4$  and  $\text{pH} = 10$  are mixed. The  $\text{pH}$  of resulting solution will be

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5. What is the total of  $\sigma$  and  $\pi$  bonds present in vinyl cyanide?

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6. 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.

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## Model Test Paper Br Section B

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

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2. A compound is formed by two elements M and N. The element N forms ccp and atoms of M occupy  $\frac{1}{3}$ rd of tetrahedral voids. What is the formula of the compound ?

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

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

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4. If NaCl is doped with  $10^{-3}$  mol percent of  $SrCl_2$ , what is the concentration of cation vacancy?

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

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6. Justify that the reaction :  $2Cu_2O(s) + Cu_2(s) \rightarrow 6Cu(s) + SO_2(g)$  is a redox reaction identify the species oxidised / reduced which acts as an oxidant and which acts as a reductant

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

(ii)  $InCl$  undergoes disproportionation but  $TlCl$  does not. Explain

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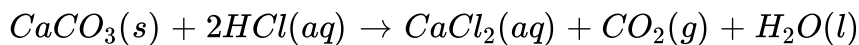
8. (a) The solubility product of  $AgCl$  in water is  $1.5 \times 10^{-10}$ . Calculate its solubility in 0.01  $NaCl$  aqueous solution .

(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  $Mg(OH)_2 = 1 \times 10^{-11}$

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## Model Test Paper Br Section C

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



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

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

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

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

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

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4. Naturally occurring boron consists of two isotopes whose atomic weights are 10.01 and 11.01. The atomic weight of natural boron is 10.81.

Calculate the percentage of each isotope in natural boron.

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



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



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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.



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



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8. (i) An element of group 2 forms 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

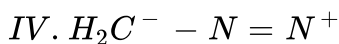
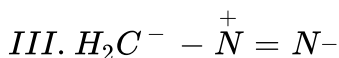
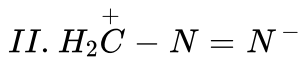
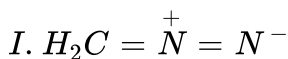
(ii) Why does the solubility of the alkaline earth metal carbonates and sulphates in water decrease down the group ? Explain why ?

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9. (i) Complete combustion of the hydrocarbon gives 0.66 g of  $CO_2$  and 0.36 g of  $H_2O$ . Find out the empirical formula of the compound .

(ii) In DNA and RNA nitrogen is present in the ring system . Can Kjeldahl's method be used for the estimation of nitrogen in these compound .Explain.

(iii) With proper reasoning arrange the following resonance structures in order of decreasing stability



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