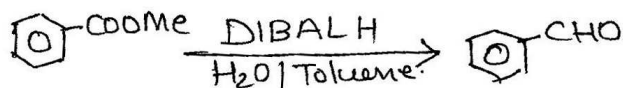
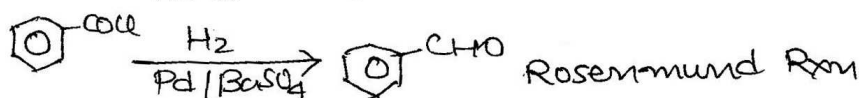
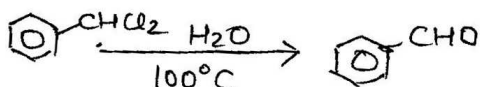
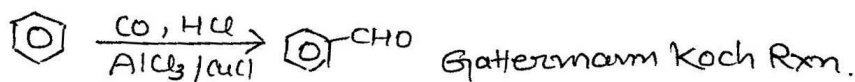
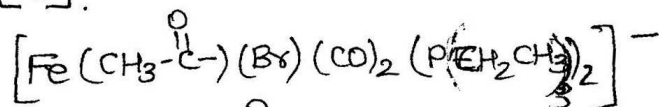


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21. [4].

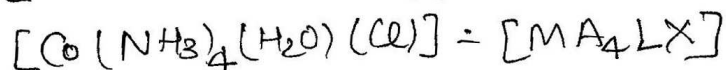
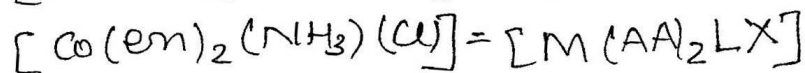
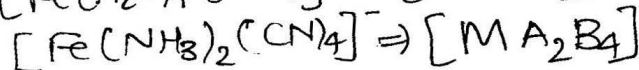
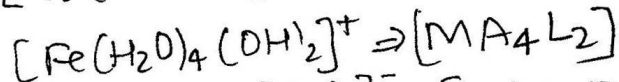
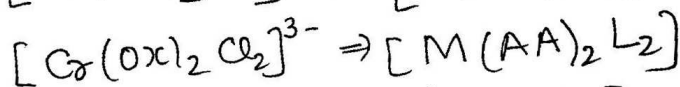
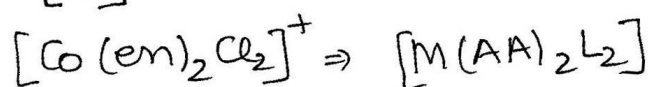


22. [3].



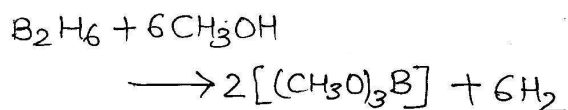
Only $\text{CH}_3\text{C}(=\text{O})\text{---Fe}$
 $\text{O}=\text{C}\text{---Fe}$ (2 times)
are directly bonded to Fe.

23. [6]



\therefore All show G.I.

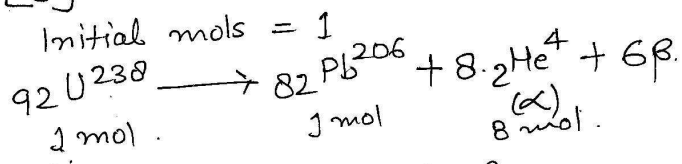
24. [6]



25. [3].

$$\begin{aligned} & pK_a[\text{HX}] - pK_a[\text{HY}] \\ &= -\log C_x \alpha_x^2 - (-\log C_y \alpha_y^2) \\ &= -\log \left[0.01 \left(\frac{\Lambda_x^c}{\Lambda_x^\infty} \right)^2 \right] + \log \left[0.1 \left(\frac{10\Lambda_x^c}{\Lambda_x^\infty} \right)^2 \right] \\ &\quad \because \left[\Lambda_x^c = \frac{1}{10} \Lambda_y^c \text{ and also } \Lambda_x^\infty = \Lambda_y^\infty \right] \\ &= -\log(10^{-2}) - \log \left(\frac{\Lambda_x^c}{\Lambda_x^\infty} \right)^2 + \log(10^{-1}) + \log 10^2 \\ &\quad \quad \quad + \log \left(\frac{\Lambda_x^c}{\Lambda_x^\infty} \right)^2 \\ &= 2 - 1 + 2 = 3. \end{aligned}$$

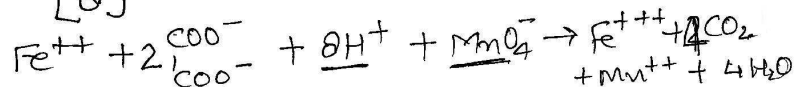
26. [9]



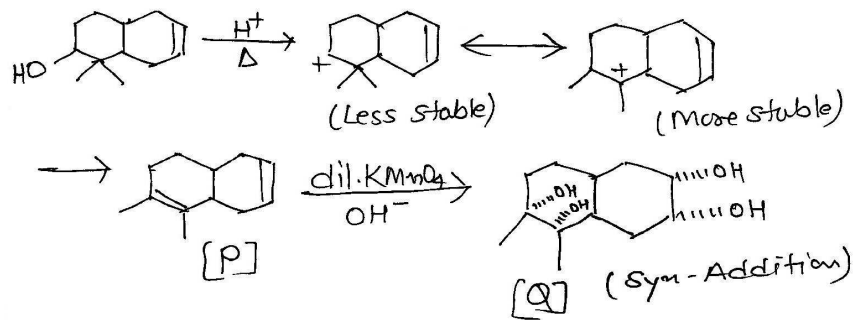
$$\text{Final moles} = 1 + 8 = 9$$

$$\therefore \frac{P_f}{P_i} = \frac{n_f}{n_i} = \frac{9}{1} = 9.$$

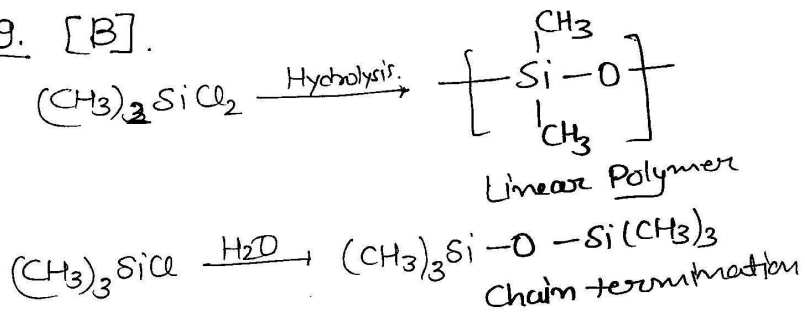
27. [8]



28 [4]



29. [B].



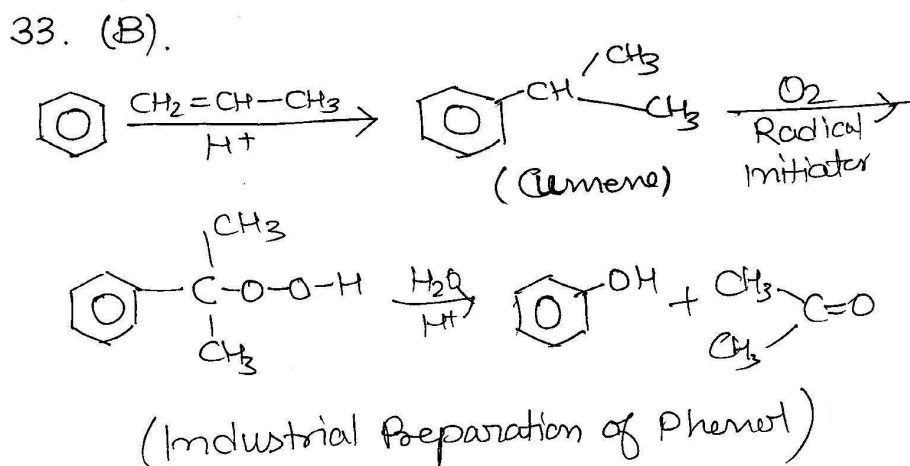
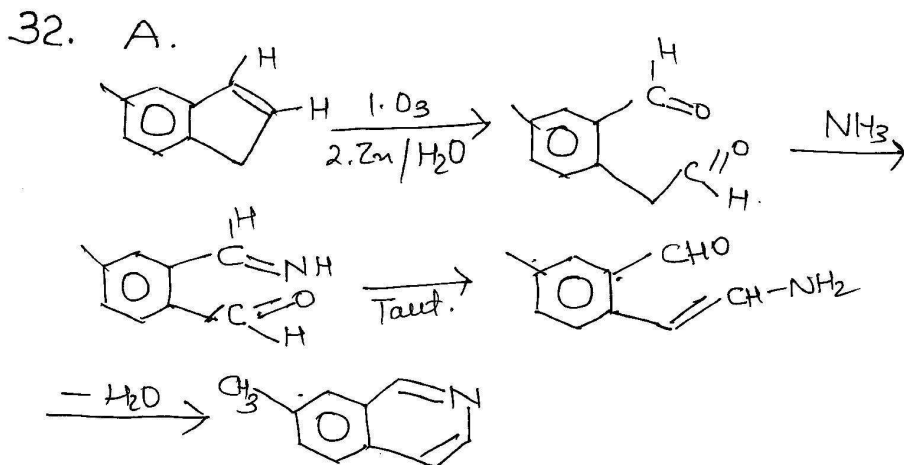
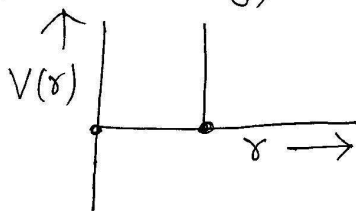
30. B, C, D

- Chemisorption takes place.
- \Rightarrow heat is released ($\Delta H < 0$)
 - \Rightarrow e⁻s are added to π^*_{2p} of O₂
 - \Rightarrow Bond order \downarrow
 - \Rightarrow Bond length \uparrow .

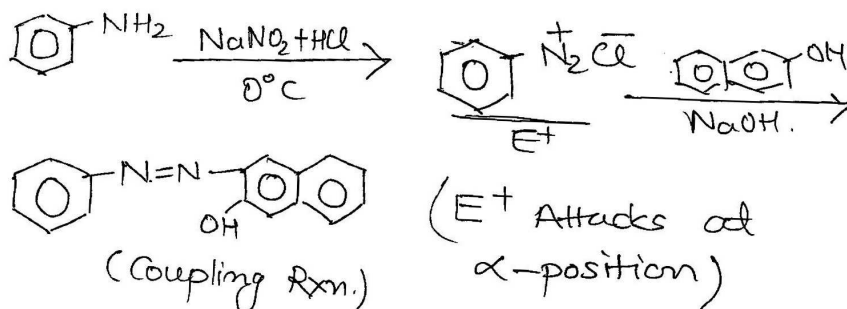
31. C. $p(V-b) = RT$.

$\Rightarrow a = 0 \Rightarrow$ interactive forces absent

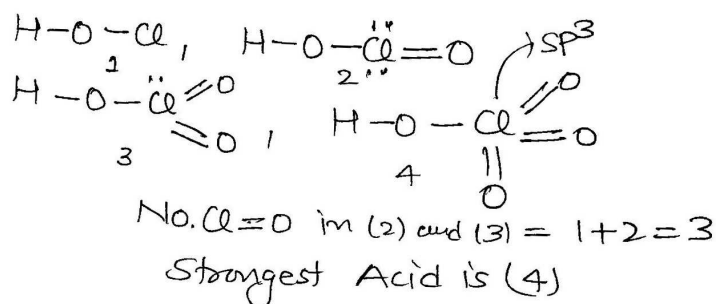
- ⇒ Repulsive forces dominates
- ⇒ Potential Energy Increases



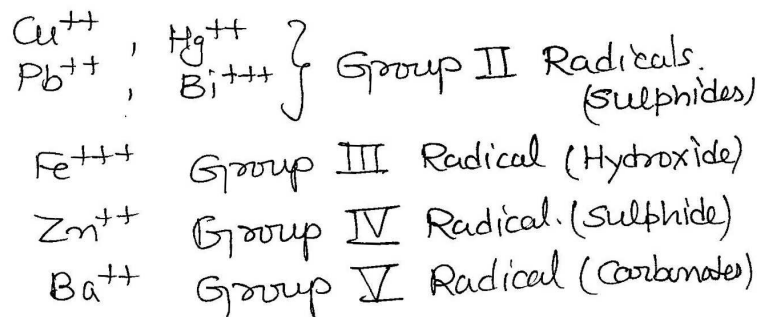
34. (A)



35. B, C

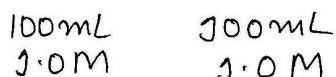


36. [C] and [D].



H_2S in presence of HCl
 \Rightarrow Gr (II) Reagent

37. A.



$$\text{Heat released} = 57 \times 0.1 = 5.7 \text{ KJ}$$



$$\text{Heat released} = \Delta H \times 0.1$$

$$\therefore \frac{5.7}{0.1 \times \Delta H} = \frac{5.7}{5.6}$$

$$\Delta H = 56$$

$$\begin{aligned} \therefore \Delta H_{\text{ioni.}}(\text{CH}_3\text{COOH}) &= 57 - 56 \\ &= 1 \text{ KJ mol}^{-1} \end{aligned}$$

38. (B).

$$\text{pH} = \text{pK}_a + \log \frac{[\text{Salt}]}{[\text{Acid}]}$$

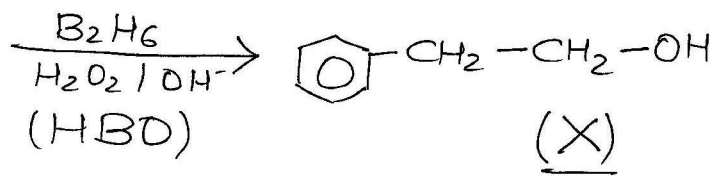
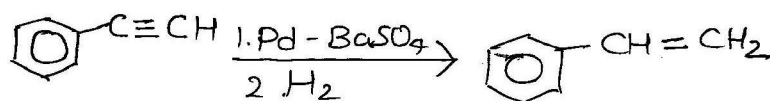
$$\text{pH} = -\log(2 \times 10^{-5}) + \log \frac{1}{2-1}$$

$$\text{pH} = -\log 2 - \log 10^{-5}$$

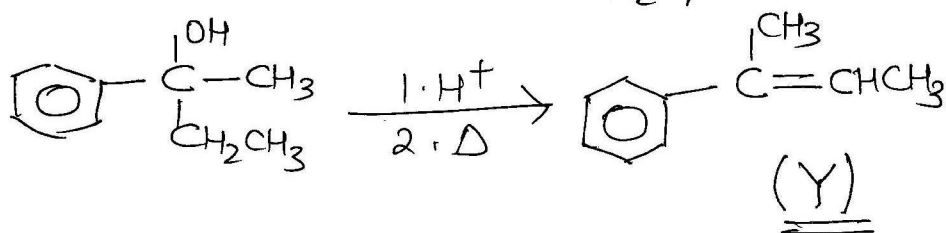
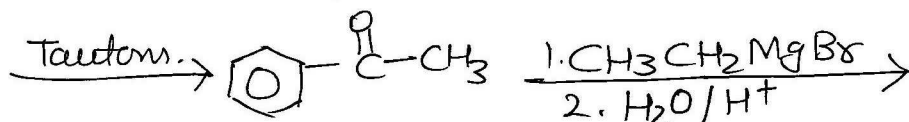
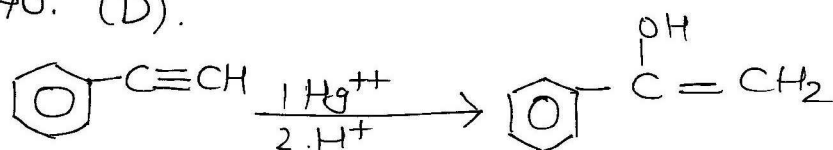
$$\text{pH} = 5 - \log 2$$

$$\text{pH} = 4.7$$

39. (C).



40. (D).



DEEPAK PATHAK
25th May 2015