

Quarterly Examination

Chemistry - XIIth - Answer key

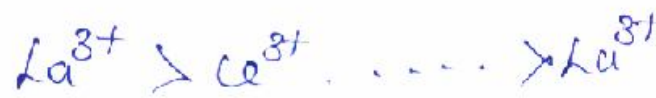
Choose the best Answer - section - 1

- 1) Actinides (D)
- 2) froth floatation (a)
- 3) 2-butanol (b)
- 4) PH_3
- 5) (d) 4, 1, 8
- 6) (a) A(4) B(3) C(2) D(1)
- 7) (c) 2
- 8) (c) Assertion is true but reason is wrong
- 9) peroxide
- 10) $3s^2 3p^5$
- 11) (d) 1 alone
- 12) (c) equal to k_c
- 13) (c) acetaldehyde
- 14) (b) $6.93 \times 10^2 \text{ min}^{-1}$ & (c) $0.693 \times 10^5 \text{ min}^{-1}$
- 15) formic acid

Section II

(16) Molecular orbitals - correct defen (2) marks

(17) Due to lanthanide contraction, the size of Ln^{3+} ions decreases regularly with increase of atomic number. According to Fajan's rule decrease in size of Ln^{3+} ions increase the covalent character and decreases the basic character between Ln^{3+} and OH^- ion in $\text{Ln}(\text{OH})_3$. Since the order of size of Ln^{3+} ions are



(18) Because of the absence of d -orbital in its valance shell does not form polyhalides. (2) marks

(19) Most common point defects
Schottky effect - NaCl
Frenkel effect - AgBr (1+1 marks)

(20) $\Delta G = \Delta H - T\Delta S$

= \dots (2) marks

= $-10,000 - 300(20)$

= $-10000 - 6000$

= $16000 \text{ cal mol}^{-1}$

(21) Le-Chatelier's principle - correct defen (2)

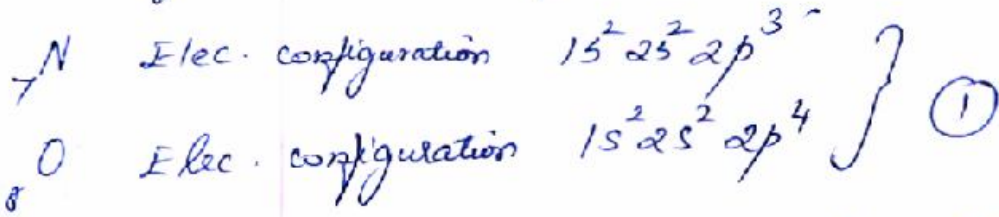
(22) Distinguish racemic/meso two points (2)

(23) Terylene preparation (equation) (2) marks

(24) Because of strong $\text{C}-\text{O}$ bond in anisole cleavage of the $\text{C}-\text{O}$ bond does not occur and occur

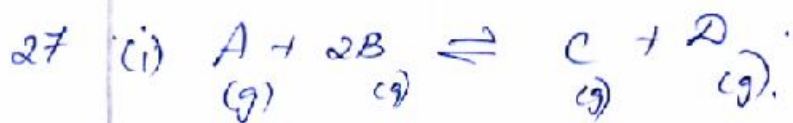
Section - 11

25. S.E of N > S.E of O - (1)



Nitrogen has stable electronic configuration } (1)
 So S.E of N > O

26. Three salient features of oxidation states of transition elements } - (3)



In the forward reaction no. of moles decreases
 $\therefore P \propto n$, According to Lechatlier's principle
 increase in pressure favours forward reaction



In this reaction $\therefore n_{\text{product}} = n_{\text{reactant}}$,
 pressure has no effect on the reaction

28. Uses of Actinides - 2 uses - $1/2 \times 2 = (3)$

29. $t_{1/2} = \frac{0.693}{k}$ - (1)

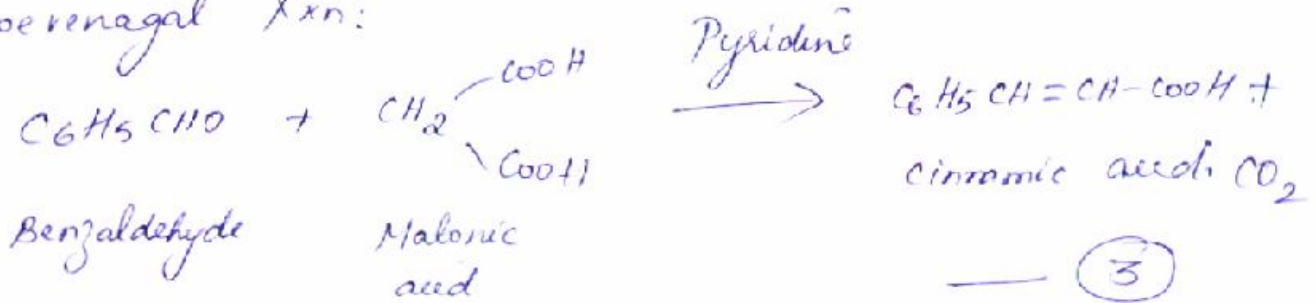
$t_{1/2} = \frac{0.693}{1.54 \times 10^{-3}}$ - (2)

$= 0.45 \times 10^3 = 450 \text{ sec}$ - (1)

30. 1. Decomposition of potassium chlorate - positive catalyst - MnO_2 .
 2. Oxidation of oxalic acid using acidified $KMnO_4$ - Auto catalyst - $MnSO_4$
 3. Oxidation of sodium arsenite - Induced catalyst - Sodium Sulphite .

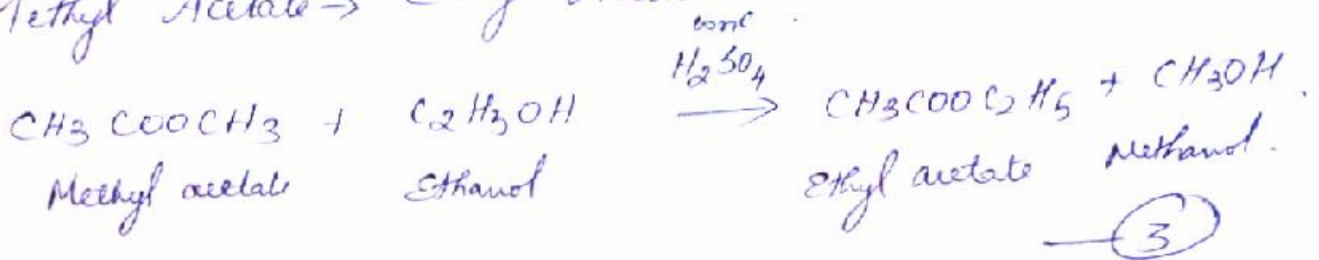
31. 3 tests for Phenol - (3)

32. Knoevenagel Rxn:



(33)

Methyl Acetate \rightarrow Ethyl Acetate :



Section - IV

- 34) (i) Two conditions for hydrogen bonding - (2)
 (ii) Three uses of Neon - (3)

- (i) Extraction of Zn - Ore - zinc blende . }
 Concentration - Froth floatation process } (1)
 Extraction - 2 Equations - (2)
 Electrolytic Refining - Anode }
 Cathode - } (2)
 Electrolyte - }

35) (i) Lanthanide contraction - (2)

(ii) Advantage & disadvantage of Mulliken's scale } $1\frac{1}{2} \times 2 \rightarrow$ (3)

(i) Vitreous state - (2)

(ii) $K_c = \frac{k_f}{k_b}$ - (1)

$2.5 \times 10^{-2} = \frac{0.05 \text{ sec}^{-1}}{k_b}$ - (1)

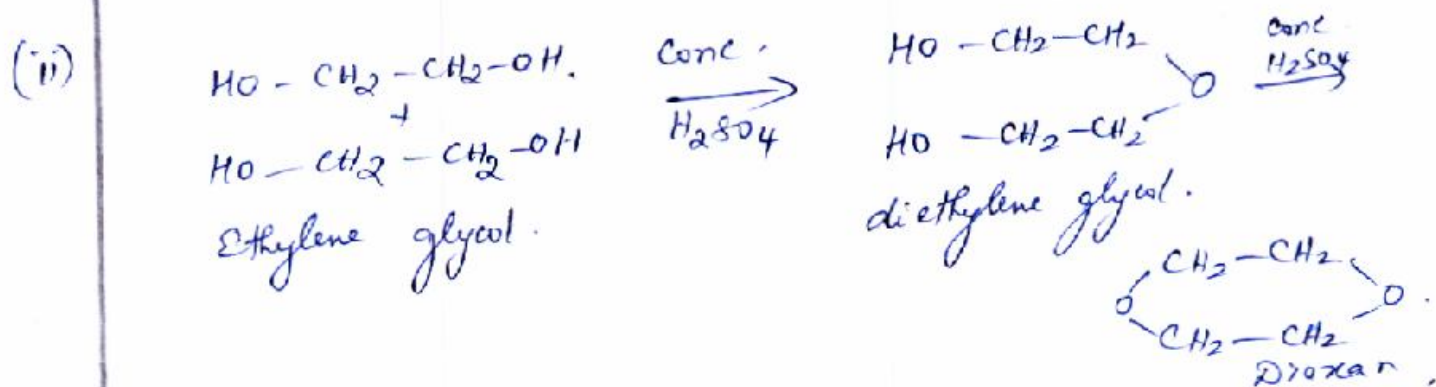
$k_b = \frac{0.05}{2.5 \times 10^{-2}} = \frac{5}{2.5} = 2 \text{ sec}^{-1}$ - (1)

36. II law of thermodynamics - 5 pts - (5)

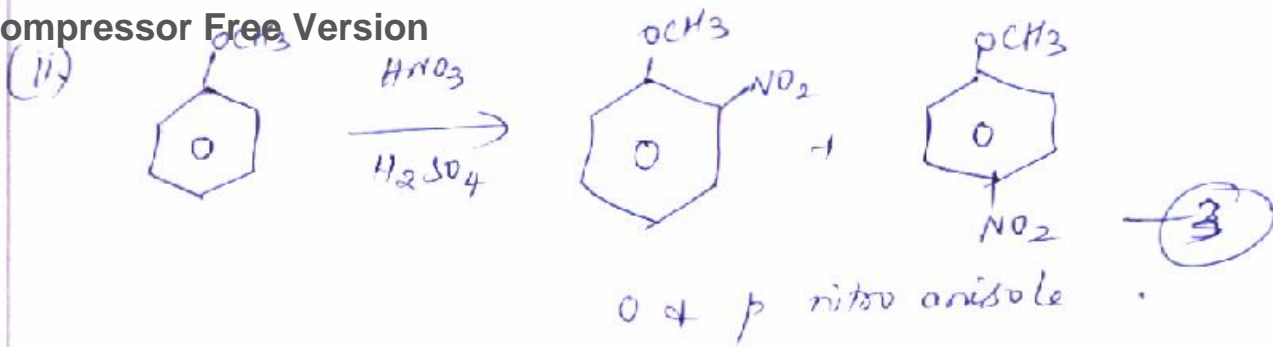
(i) Activation Energy - correct definition - (3)

(ii) Adsorption - (2)

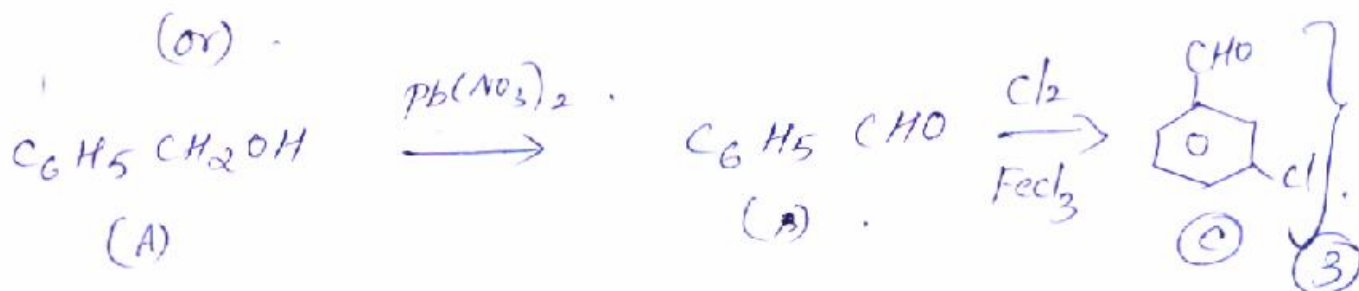
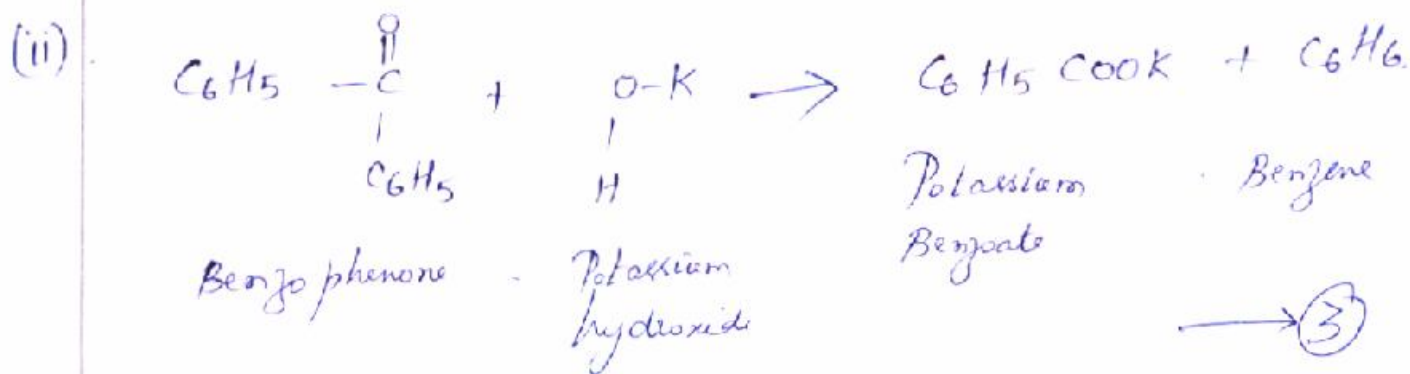
37(i) The inter halogen compounds are more reactive than the halogens because the A-X bond is weaker than the X-X bond in the halogens. - (2)



(i) Trans isomer is more stable than cis isomer, because in cis isomer there is steric repulsion. - (2)



88(i) Chloro acetic acid is stronger than acetic acid due to -I effect of chlorine. } - (2)



- A - Benzyl alcohol
 - B - Benzaldehyde
 - C - Meta chloro benzaldehyde
- (2)

Handling Teachers

1. S. S. S.
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6. N. S. S.

22/9/18