

தமிழ்நாடு தேர்வு - 2022

பகுதி: XII

பாடம் : வேதியியல்

மதிப்பீடுகள் : 70

நேரம் : 3:00 மணி

வினாடிக்குப்புகள் தேதி : 27/9/22

- | | |
|---|--|
| 1) வேதக்கருவதம் மற்றும் துரையிதப்பு குறை | 1 Both (a) and (c) |
| 2) குப்பை - பிச்சைகு தாது | 2 cuprite - oxide ore |
| 3) a) 2 1 4 3 | 3 a) 2 1 4 3 |
| 4) a) H_3PO_3 | 4) a) H_3PO_3 |
| 5) a) $H_2S_2O_7$ | 5) d) $H_2S_2O_7$ |
| 6) அ) உற்று மற்றும் கருணம் குறையும் தர உயரும் கருணமினது உத்தரகு தரினது விளக்கம் | 6) a) Both assertion and reason are true and reason is the correct explanation of assertion. |
| 7) இ) 32 % | 7) c) 32 % |
| 8) அ) குதல்உதை | 8) a) First order |
| 9) பி) 9 | 9) b) 9 |
| 10) இ) 1.44×10^{-5} | 10) c) 1.44×10^{-5} |
| 11) பி) 4- நைட்ரோபீனாஸ் | 11) b) 4-nitro phenol |
| 12) a. எத்தனாஸ் | 12) d) Ethanol |
| 13) இ) அமோனியம் பார்ம் கிருண | 13) c) Iodoform test |
| 14) a.) உயி. பி. கிருண வினா | 14) d) wolf kishner reduction. |
| 15) a.) பென்சோனா மகனாஸ் | 15) d) Benzophenone |

N. RAMESH

P.G. Teacher

M.M.Hr. Sec. School

Thirunagar.

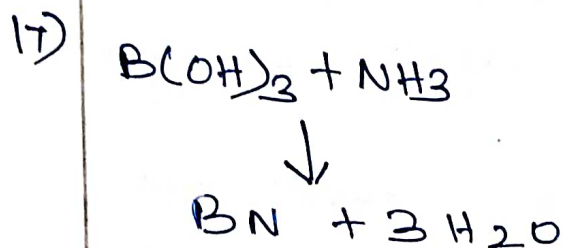
PART-II

$(6 \times 2) = 12$

 $\frac{2}{10}$

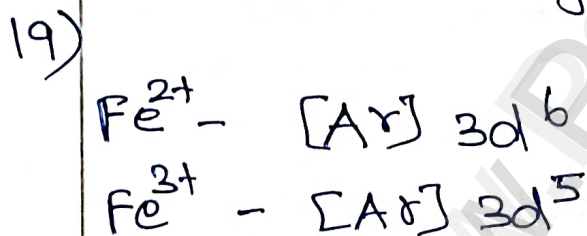
16) The metal should be a volatile compound with a suitable reagent.

ii) The volatile compound is decomposed to give the pure metal.



18) minimum value of F-F Bond dissociation energy.

F₂ is more reactive than other halogens.

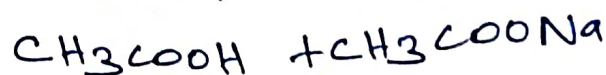


Half filled are more stable. So Fe³⁺ is more stable than Fe²⁺.

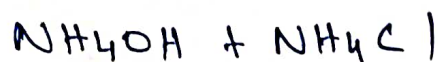
20) Buffer solution resist drastic changes in its pH upon addition of small quantities of acids (or) bases.

types

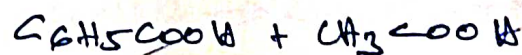
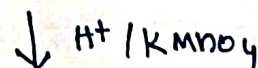
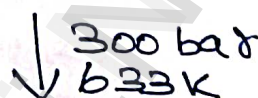
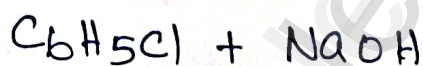
Acidic buffer



Basic buffer



21) Dow's process.



23) uses of Benzoic acid

- * Food preservatives
- * manufacture of dyes
- * medicine as an urinary antiseptic.

24)

i) Rusting of iron - 1

ii) First order reaction

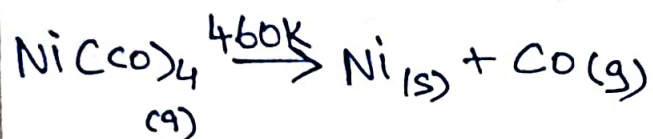
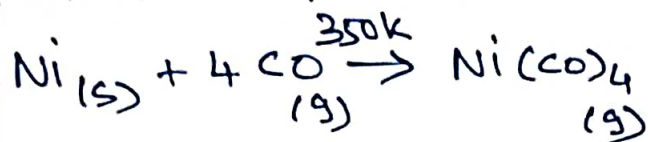
iii) Pseudo first order reaction

iv) overall order $[\frac{1}{2} + 2]$

PART - III (6×3=18)

2/10

25) Mond's Process



26) Definition and any two properties.

27) Any Three Uses of He.

28) Any Three difference between Lanthanides and Actinoids.

29) Unit cell - Definition seven types cubic, Rhombohedral, Hexagonal, Tetragonal, Orthorhombic, monoclinic, Triclinic.

30) Factors affecting the reaction rate

- 1) Nature and State of the reactant
- 2) Concentration of the reactant
- 3) Surface area of the reactant

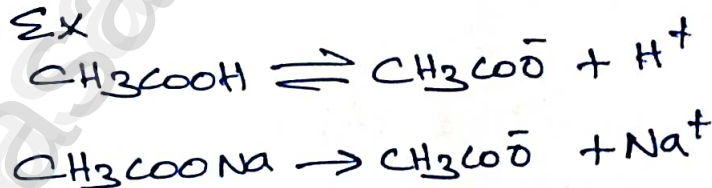
4) Temperature

5) Presence of catalyst.

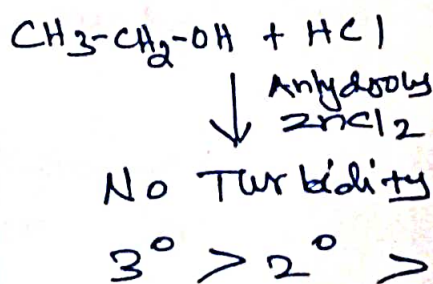
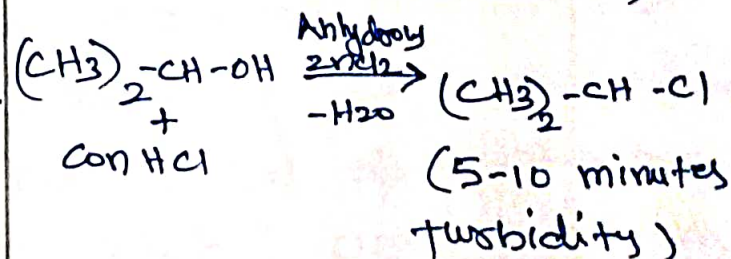
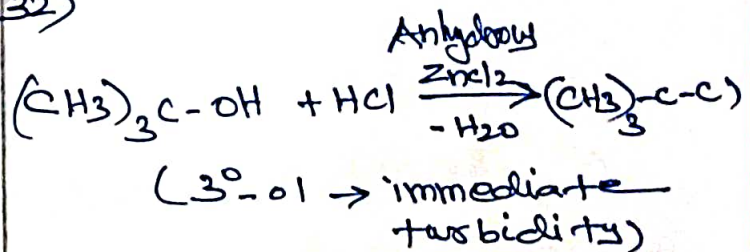
any one explanation

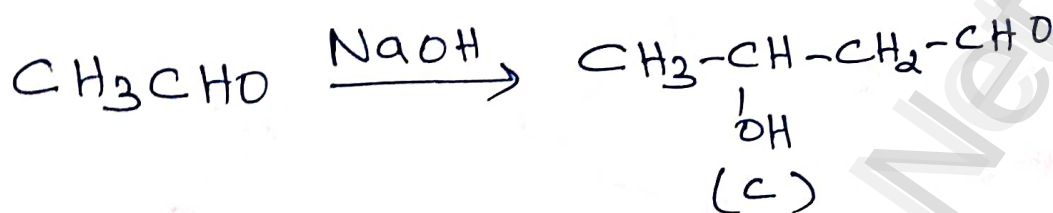
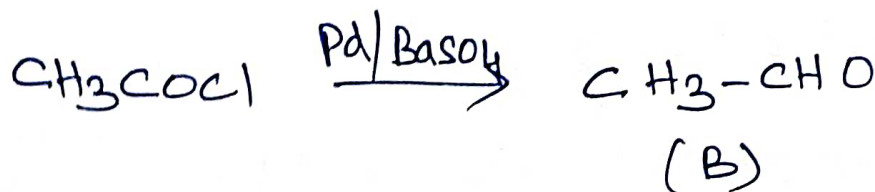
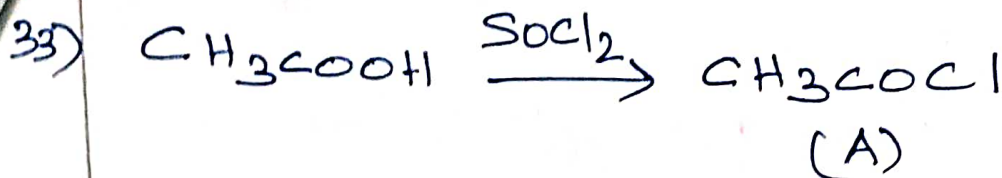
31) Common ion effect.

The dissociation of the weak acid is suppressed in the presence of a salt containing an ion common to the weak electrolyte.



32)





PART-IV

(5×5=25)

Extraction:-

- 34) a) i) Conversion of ore into oxides of the metal of interest

ii) Reduction of the metal oxides to elemental metals.

ii) Electrolytic refining

Principle: Crude metal is refined by electrolysis. It is carried out in an electrolytic cell containing aqueous solution of the salts of the metal of interest. The rods of impure metal are used as Anode and Pure metal are used as Cathode.

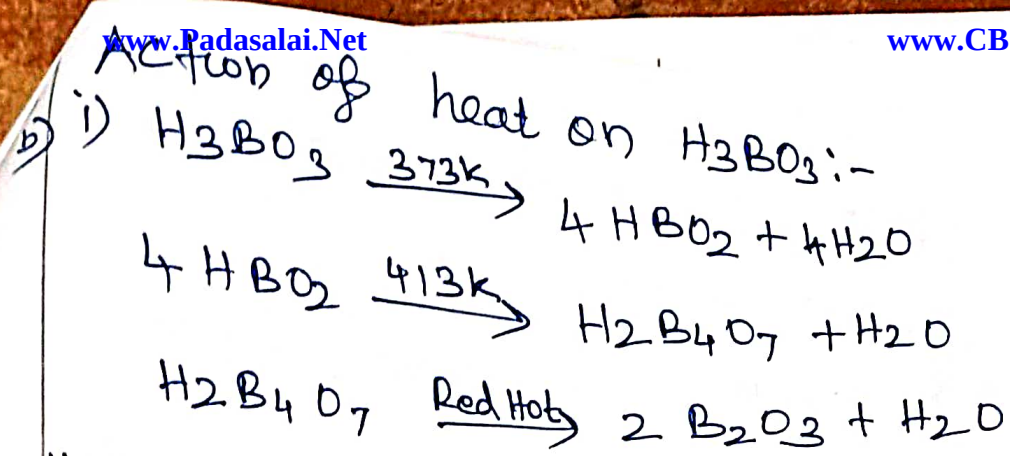
EX

Anode: Impure Cu

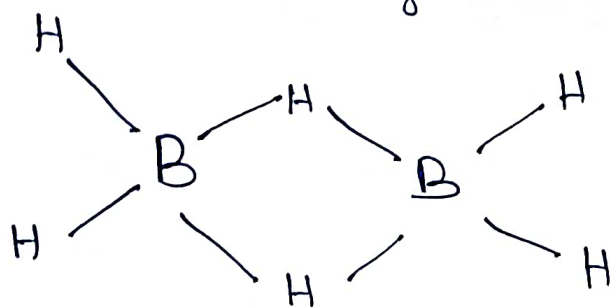
Cathode: Pure Cu

Electrolyte: $\text{CuSO}_4 + \text{dil H}_2\text{SO}_4$

Insoluble impurities deposited under anode mud



ii) Structure of Diborane:

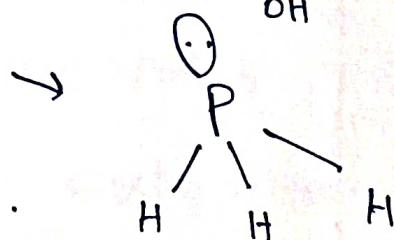
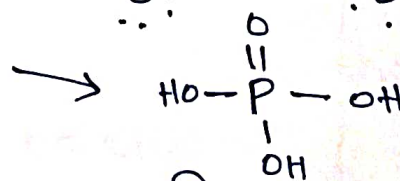
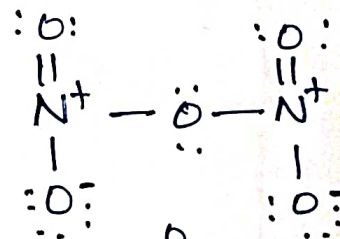
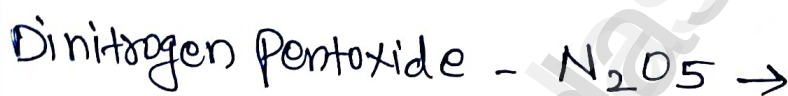
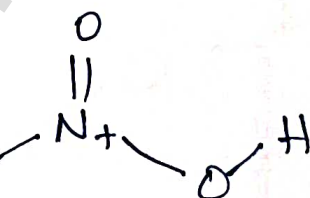
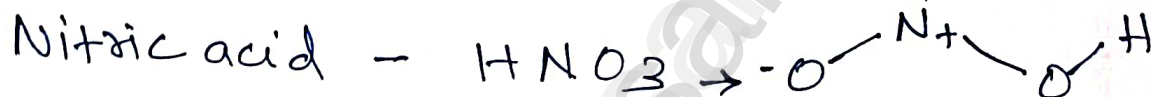


Explanation.

Hybridisation - sp^3

35) i)

a)



ii) Inter Halogen Compound.

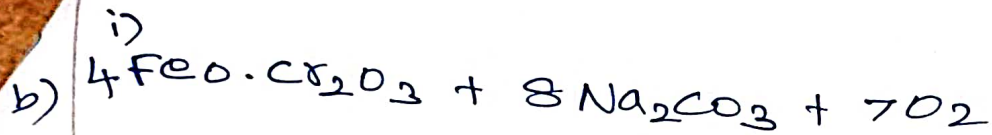
35)

One halogen combine with other halogen to form the compounds are inter halogen compounds.

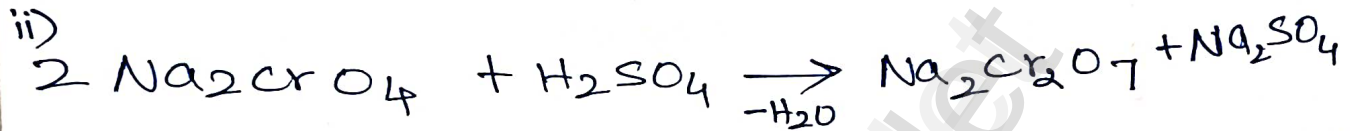
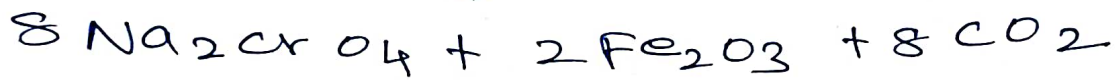


(OR)

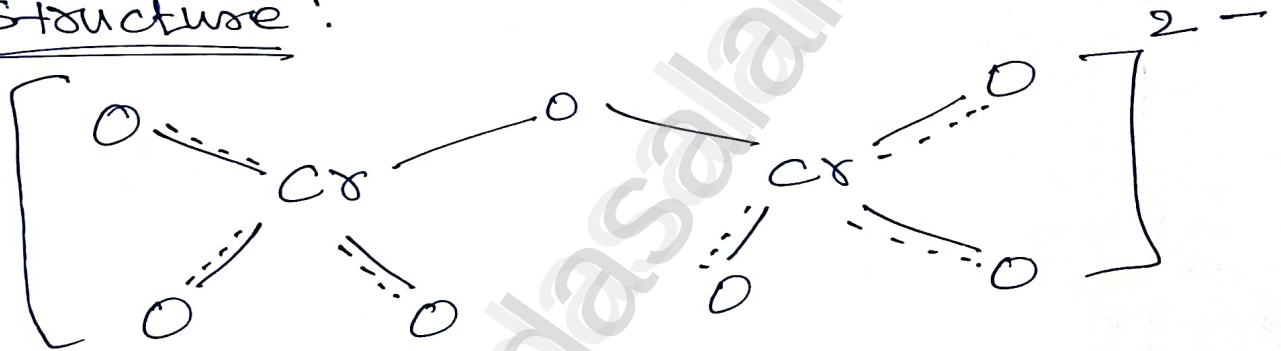
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$\downarrow 900-1000^\circ\text{C}.$



Structure:



36) a) Any ~~one~~ ^{TWO} Difference between tetrahedral and octahedral voids.

b) metal deficiency defect - explanation
Ex FeO. (08)

36) b) Integrated rate law for First order reaction. $A \rightarrow \text{product}$

...

$$\text{CH}_3\text{COOH} \rightleftharpoons \text{CH}_3\text{COO}^- + \text{H}^+$$

$$pH = pK_a + \log \frac{[salt]}{[Acid]}$$

$$\begin{aligned} pK_a &= -\log(1.8 \times 10^{-5}) = 5 - \log 1.8 \\ &= 5 - 0.26 \\ &= 4.74 \end{aligned}$$

$$pH = 4.74 + \log \frac{0.20}{0.18}$$

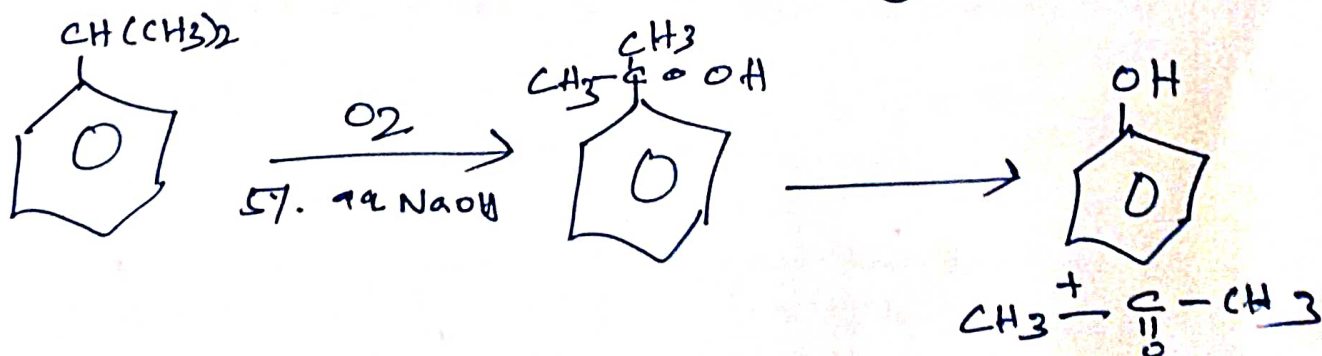
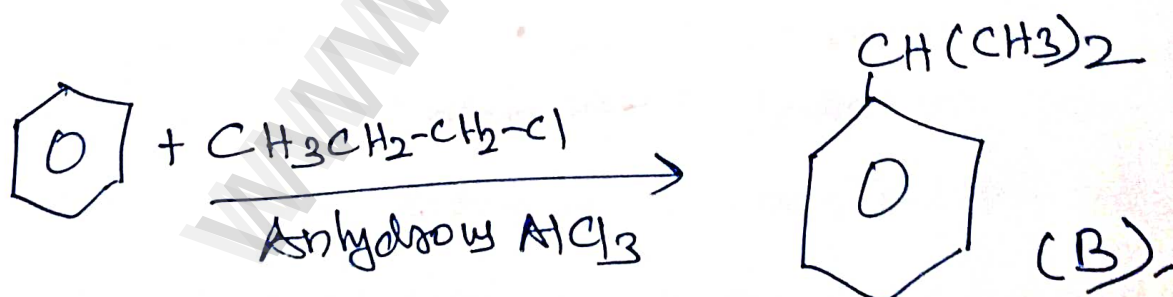
$$= 4.74 + \log \frac{10}{9}$$

$$= 4.74 + \log 10 - \log 9$$

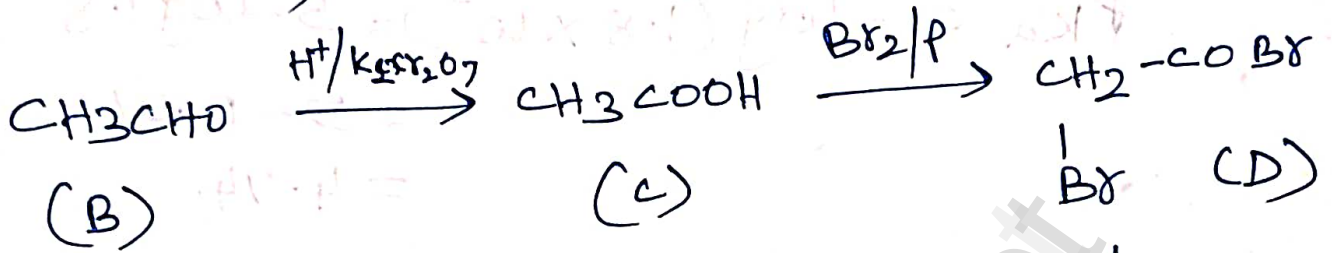
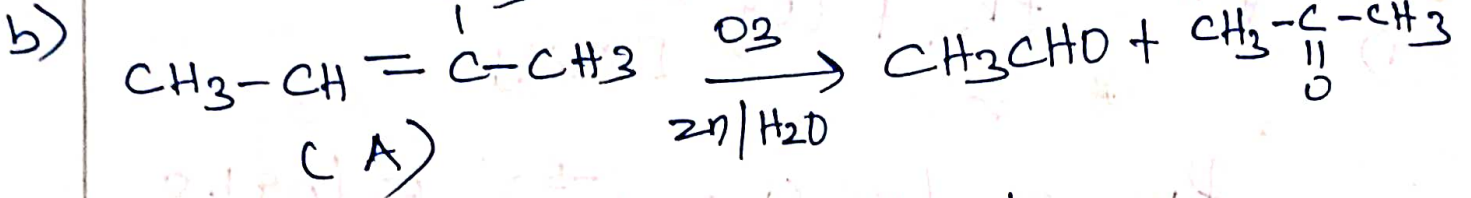
$$= 4.74 + 1 - 0.95$$

$$pH = 4.79$$

ii)

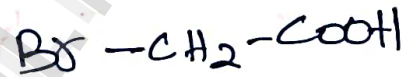
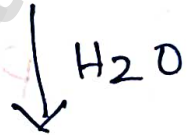


38)



(B)

(C)



(E)

✓ All the best ✓