



Assignment of general principle of isolation of elements

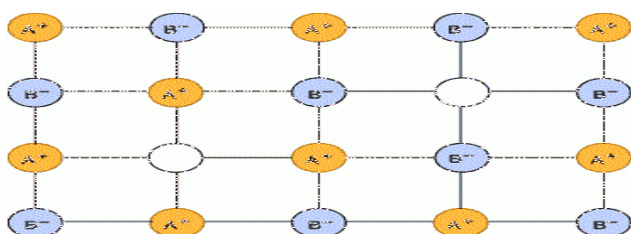
1. What is the difference between mineral and ore?
2. Write the principle of following processes
 - a. Hydraulic washing
 - b. Froth floatation
 - c. zone refining
 - d. vapour phase refining
 - e. chromatography
 - f. liquation
 - g. distillation
3. What is the role of depressant or NaCN during froth floatation?
4. Write the difference between calcination and roasting?
5. Why is copper matte put into silica lined convertor?
6. Out of C and CO which is better reducing agent at low temperature and why?
7. What is difference between pig iron and cast iron?
8. Why CaCO_3 is added during preparation of iron from haemetite?
9. Why is copper extracted by hydrometallurgy but zinc not?
10. What is role of cryolite during electrolytic reduction of aluminium from alumina?
11. What is the role of graphite rod during electrolytic reduction of aluminium from alumina?
12. Name the metals which are present in anode mud.
13. Explain mond process.
14. Explain van arkel refining.
15. What are the criterion in deciding stationary state?
16. Name few metals which are refined by electrolytic refining.
17. Write the reactions that takes place in blast furnace.
18. Write the condition under which aluminium reduces Mg from MgO.
19. Explain leaching of gold and silver.
20. Why is extraction of copper from pyrite difficult than from its oxide ore?

Assignment for surface chemistry

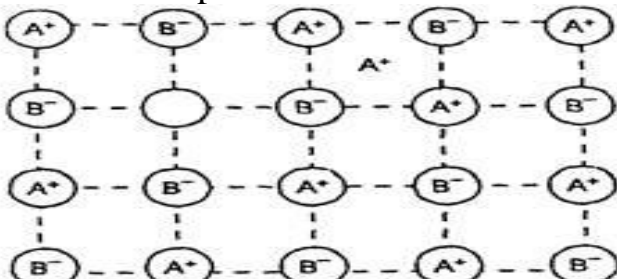
1. What is the difference between adsorption and absorption?
2. What is the difference between physisorption and chemisorption?
3. Why is powdered charcoal better adsorbent as compared to solid?
4. Why is adsorption of gas decreased with increase in temperature?
5. Explain freundlich adsorption isotherm. Write its expression.
6. What is adsorption isobars?
7. Write the difference between lyophilic and lyophobic sol.
8. Explain multimolecular, macromolecular colloids and associated colloids.
9. What will happen if FeCl_3 is added to freshly precipitated FeOH_3 sol?
10. What will happen if light is passed through colloidal solution?
11. What is the reason of stability of colloidal solution?
12. Explain the following
 - a. Electro dialysis
 - b. Electrophoresis
 - c. Brownian movement
 - d. Tyndall effect
 - e. Helm holtz double layer
 - f. Zeta potential
 - g. Hardy schulze law
 - h. Gold number
13. What will happen if NaCl is added to FeOH_3 sol?
14. What are emulsion? What are its types? Give example of each.
15. How is delta formed?
16. Why Cottrell precipitator is fitted in mouth of chimneys?
17. What is the role of gelatin in preparation of ice creams?
18. Why is CO removed during the production of ammonia?
19. Explain homogeneous and heterogeneous catalysis with examples.
20. Explain selectivity, activity and specificity of catalyst?
21. Why is zeolite regarded as shape selective catalyst?
22. Explain promoter of catalyst with example.

Assignment of solid state

- Explain the following
 - Unit cell
 - Space lattice
 - Tetrahedral void
 - Octahedral void
 - F center
- Calculate packing efficiency of simple cubic unit cell, face centered unit cell and body centered unit cell.
- A compound is made up of two elements X and Y. X is present at corner and Y is present in body. Write the formula of compound.
- Study diagram give answer of following
Which is the defect shown in diagram?
What is the effect on density in this defect?
Write an example of this defect.



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- Why is NaCl developed colour in rainy days?
- Why does ZnO turn yellow on heating?
- What type of semiconductor will produce if silicon is doped with
 - As
 - B of Al
 - In
- Explain conductors, semiconductor and insulator as per band theory.
- Explain ferromagnetic, antiferromagnetic and ferrimagnetic substance with domain.
- Solve num. no. 1.1, 1.2, 1.3, 1.4, 1.5 solved in text questions and 1.16, 1.18 in text unsolved and 1.11, 1.15, 1.16, 1.19, 1.21, and 1.24 of NCERT exercise.

Assignment of chemical kinetics

1. What is average rate of reaction and instantaneous rate of reaction?
2. Why do pieces of wood burn faster than log of wood?
3. Write the difference between order of reaction and molecularity.
4. What is rate law?
5. What is the effect of temperature on activation energy and Gibbs free energy?
6. What is activation energy and collision theory?

Do numerical

In text solved – 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.10, 4.11

In text unsolved – 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8

Exercise – 4.2, 4.6, 4.9, 4.10, 4.11, 4.14, 4.16, 4.18, 4.19, 4.20, 4.21, 4.25, 4.26, 4.27

Assignment of d & f block

Important ionic equations –

$\text{Cr}_2\text{O}_7^{2-}$ changes to Cr^{3+}

MnO_4^- changes to Mn^{2+}

In case of $\text{Cr}_2\text{O}_7^{2-}$ species must be multiplied by 6 and in case of MnO_4^- species must be multiplied by 5.

These Oxo ions changes

X^- Changes to X_2

Fe^{2+} changes to Fe^{3+}

NO_2^- Changes to NO_3^-

SO_3^{2-} Changes to SO_4^{2-}

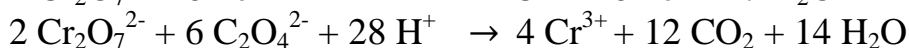
S^{2-} Changes to S

$\text{C}_2\text{O}_4^{2-}$ Changes to CO_2

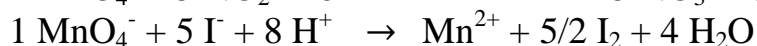
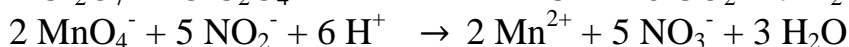
Sn^{2+} Changes to Sn^{4+}

In case of X^- and Fe^{2+} $\text{Cr}_2\text{O}_7^{2-}$ must be multiplied by 1 and in case of others MnO_4^- must be multiplied by 2. Then balance oxygen and then hydrogen.

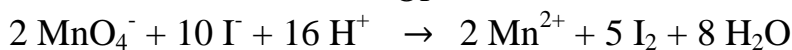
Example,



Or



Or



DO ALL THE EQUATIONS OF $\text{Cr}_2\text{O}_7^{2-}$ AND MnO_4^- USING ABOVE REACTANTS IN ACIDIC MEDIUM.

Important question

1. Write down the preparation of potassium dichromate from chromite ore.

Or

A mixed oxide FeCr_2O_4 it is fused with sodium carbonate in the presence of oxygen gives a yellow coloured compound **A**. on acidification **A** forms an orange coloured compound **B**. on the treatment of **B**. on treatment **B** with potassium chloride, it gives salt **C**. identify **A**, **B** and **C**.

2. Write down the preparation of potassium permanganate from pyrolusite.

Or

A blackish brown compound **A** when it is fused with sodium hydroxide in the presence of oxygen gives a dark green coloured compound **B**. on acidification **B** forms a dark violet coloured compound **C**. Identify **A**, **B** and **C**. Write down the reactions involved.

3. What is lanthanoid contraction? Write its cause and consequences.
4. Write the difference between transition elements and representative elements.
5. Write the difference between lanthanoid and actinoid elements.
6. The lowest oxide of transition elements is basic, the highest in acidic. Why?
7. A transition element shows higher oxidation state in oxide and fluorides. Why?
8. The highest oxidation state is exhibited in Oxo ions. Why?
9. Of the d^4 species, Cr^{2+} is strongly reducing while Mn^{3+} is strongly oxidizing. Why?
10. Cobalt II is stable in aqueous solution but in the presence of complexing agents, it is oxidized.
11. The d^1 configuration is very unstable ion. Why?
12. The transition metals and many of their salts show paramagnetic behavior. Why?
13. The enthalpies of atomization of transition metals are high. Why?
14. The transition metals generally form coloured compounds. Why?
15. Transition metals and their compounds act as good catalyst. Why?
16. Transition metals form interstitial compounds. Why?
17. Why is Cu^+ not stable in aqueous solution?
18. Why Zr and Hf is show similar properties or similar atomic radius?

COMPLETE THE ASSIGNED PROJECT AT YOUR HOME.