2 MARKS QUESTION

Ques) What are Chiral Drugs? Give Example of Chiral Drugs.

Ques) How does Gross Calorific value differ from Net Calorific value.

Ques) What are Chromophores & Auxochromes?

Ques) What is Bio-degradable polymers?

Ques) Arrange the following Molecules of ions in increasing order of bond length. O_2, O_2^+ & O_2^-.

Ques) Why O_2 is paramagnetic & N_2 is diamagnetic?

Ques) Why Teflon is highly chemically resistant?

Ques) Explain Hardness of Water?

Ques) Why is graphite used as lubricant?

Ques) Write the electrode reaction of galvenic cell?

Ques) Define gross and net calorific value of fuel.

Ques) Write the any two application of nanotechnogy.

Ques) What dow you mean by Hardning of cement?

Ques) Write name of salts of responsible for temporary hardness?

Ques) Graphite is a Good Conductor of electricity. Why?

Ques) Write the Monomers of BUNA-S and Polystereno.

Ques) A water sample is found to contain 40.5 mg/L $Ca(HCO_3)_2$; 14.6 mg/L; $Mg(HCO_3)_2$ 22.2 mg/L $CaCl_2$; 24 mg/L $MgSO_4$ 18 mg/L. Calculate the temporary and permanent hardness of water.

Ques) Temporary hardness is removed by boiling. Write chemical reaction in support to your answer.

Ques) Which species out H_2, H_2^{2+} and H_2^{2-} are Paramagnetic and Why?

Ques) Explain Why CO_2 is IR active and N_2 is IR inactive Molecule.

Ques) Calculate hardness of water sample Containing impurity of $Ca(HCO_3)_2 = 81$ mg/L.

5 MARKS QUESTION

Ans) Explain the Setting and Hardening of Cement with relevant chemical reactions involved in during Process.

Ans) Describe different type of liquid Crystals. Discuss the application of Liquid Crystals.

Ans) What are Organo~~material~~ metallic Compound? Discuss the Preparation of Grignard Reagent. Predict the final product obtained from when C_2H_5MgBr react with,
i) HCH ii) CH_3CHO iii) $(CH_3)_2CO$?

Ans) Describe the structure and application of Graphite and Fullerenes. Explain the reason for electrical and lubricanting properties of graphite.

Ans) What are Carbon Nano-tubes? Discuss the applications of nanomaterials?

Ans) Explain the basic principle of IR spectroscopy. What is the significant of Fingerprint region in IR spectroscopy.

Ans) Discuss the Mechanism of Electrochemical theory of Corrosion by absorption of oxygen. What effect will injects oxygen supply have no such corrosion?

Ques) Explain the process of Water softening. What are advantages and limitation of this process? Calculate amount of lime soda and soda required for the treatment of 10,000 liters of water whose analysis is as follow (in mg/L):-

$Mg(HCO_3)_2 = 73$; $CaSO_4 = 102$; $MgCl_2 = 95$;
$MgSO_4 = 24$; $Ca(HCO_3)_2 = 121.5$; $NaCl = 55$.

Ques) Explain the different parameters and are determined in the proximate and analysis of coal. On burning 0.92g of a solid fuel in a bomb Calorimeter, the temperature of 3500g of water increased by 2.42°C. Water Equivalen of calorimeter and latent Heat of steam are 385.0g and 587.0 Cal/g, respectively. If the fuel contain 0.7% Hydrogen, calculate its GCV and NCV.

Ques) Draw the Molecular Orbital diagram of NO, Calculate the bond order the predict the Magnetic Behaviour NO, NO^+, NO^-.

Ques) What are Resins? How Hard Water can be purified by Ion-Exchange Resins? Compare Merits and demerits over lime-soda process.

Ques) Calculate the quantity of lime (74% pure) and soda (90% pure) for softening 50,000 liters of Water containing the following salts:
$Mg(HCO_3)_2 = 50 mg/L$, $MgCl_2 = 6 ppm$, $Ca(HCO_3)_2 = 81 mg/L$
$CO_2 = 44$, $Na_2SO_4 = 10°F$, $HCl = 73 mg/L$, $Al_2(SO_4)_3 = 57 mg/L$

Ques) With the help of neat diagram, Explain the Construction and working of bomb calorimeter. A sample of coal contain C = 80%, H = 15% and ash = 5%. The following data were obtained when the above coal was tested in bomb Calorimeter

Weight of coal burnt = 0.98g
" " water taken = 100g
Water equivalent of bomb and calorimeter = 2500g
Rise in temperature = 2.5°C
Fuse wire correction = 57.0 cal
Acid correction = 50.0 cal
Cooling correction = 0.02°C

Calculate gross and net calorific value of the coal.

Ques) What are Conducting polymeters? Classify conducting polymers and Mention their application?

Ques) Define the term batteries. Explain the Construction of lead acid battery. Write all the Chemical reactions taking place during charging and discharging of lead acid battery.

Ques) What is Lambert's-Beers law in UV visual Spectroscopy? And also Explain of TMS in NMR spectroscopy.

Ques) A water sample containing following salts. $CaCl_2 = 55.5gm$, $NaHCO_3 = 12.6\ mg$, $MgSO_4 = 40mg$, $Fe(SO_4) = 2Pm$, $Mg(HCO_3)_2 = 43.8\ mg$, $CO_2 = 2.2PPm$, $CO_3^{2-} = 60PPm$, $OH^- = 32PPm$, $NaAlO_2 = 8.2PPm$. Calculate the quantity of lime (85% pure) and soda (90% pure) for softening 50000 liters of water.

Ques) Explain sheilding and desheilding in NMR spectroscopy.

Ques) What is meant by calorific value of fuel? What is the difference b/w gross calorific value and net calorific value?

Ques) What are cements? Also Explain the Manufacturing process of Portland cement?