



19/12/2012

**DOON UNIVERSITY, DEHRADUN**  
**Final Examination, First Semester, 2012**  
**School of Environment & Natural Resources**

**M.Sc. (Environmental Studies)**  
**Course: EES – 517: Environmental Chemistry**

*Time Allowed: 3 Hours*

*Maximum Marks: 50*

*Note: Attempt All Questions from Sections A, B, C.*

**SECTION : A .Short Answer Type Questions. Attempt all Questions. (Marks: 1.5x8=12)**

1. What is chemical formula of Potash alum? Which property is responsible for cleaning water?
2. What is rate of reaction?
3. Differentiate between acidity and basicity.
4. Define the term pE and pH.
5. What type of bonds are responsible for formation of water molecule?
6. Calculate the Equivalent mass of  $H_2SO_4$
7. What are polynuclear aromatic hydrocarbons?
8. Write short note on COD.

**SECTION: B .Short Answer Type Questions to be answered in about. Attempt any FIVE Questions. (Marks: 4x 5=20)**

1. What is acid rain? How it is caused?
2. What is the chemical fate and pathway of methane in the atmosphere?
3. What are the major ions present in sea water and freshwater and how do they differ in concentration?
4. What is green chemistry? Discuss the characteristics of green compounds.
5. What is soil profile? Discuss major classes of organic compounds in soil?
6. Illustrate carbon cycle with the help of diagram.
7. Explain Gibbs Free Energy. Derive equation for free energy.

**SECTION: C (Long Answer Type Questions to be answered in about 750 words. Attempt any Two Questions). (Marks: 9x2=18)**

1. Discuss in detail chemistry of stratosphere.
2. Give a detailed account of chemistry of water?
3. Discuss in detail the structure and chemical composition of atmosphere.
4. Calculate the volume of hydrogen liberated at STP when  $500cm^3$  of 0.5 N sulphuric acid reacts with excess of zinc.