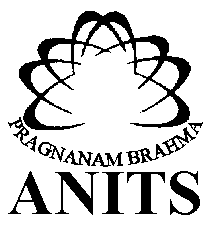
**ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES (A)**



**(Affiliated to AU, Approved by AICTE & Accredited by NBA)**

**Sangivalasa-531162, Bheemunipatnam Mandal, Visakhapatnam District**

**Phone: 08933-225083/84**

**Department of Chemistry**

***Subject: Engg. Chemistry Assignment No. 01***

**Topic: Water Chemistry & water technology Submission date:18/9/17**

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| --- | --- | --- | --- | --- |
| CO | Question Numbers | Marks | Submitted on | Student name with Reg.No |
| CO-1 |  |  |  |  |
| CO-6 |  |  |  |  |

**Short answer questions**

1. Define hardness. Why hard water cannot be used in industry?
2. Distinguish between scale and sludge.
3. Compare zeolite process and ion exchange process of water softening and comment on the effectiveness of the processes
4. Discuss the problem when a boiler is fed with lime-soda softened water.
5. What is chlorination? why breakpoint chlorination place a vital role chlorination
6. What is super fine filtration? How it is useful for treating sea water?
7. A water sample contains 73g Mg(HCO3)2 in water per liter. Calculate hardness of water
8. Calculate the hardness of water containing CaSO4=50ppm, MgCl2=25 ppm.

**Essay questions**

1. What is the principle of internal conditioning of boiler water? Discuss carbonate and calgon conditioning
2. Mention the principle and equations involved in lime soda process of water softening
3. How hardness of water can be estimated experimentally by EDTA method?
4. What is demineralized water? How it can be obtained by ion exchange process
5. how municipalities are treating for domestic usage