



DOON UNIVERSITY, DEHRADUN

Mid Semester Examination, 2014, Third Semester

M.Sc (Environmental Science)

Course- ETE- 515- Industrial Wastewater Treatment

Time Allowed: 2 Hours

Maximum Marks: 30

SECTION : A (Short Answer Type Questions/ to be answered in about max 250-300 words).

Attempt any EIGHT questions

(Marks: 1.25 x 8 = 10)

1. Define pollutants, contaminants, sewage and phase transfer
2. Explain why the value of COD is higher than BOD
3. Define onsite and offsite/centralized treatment system
4. Explain why recycled sludge is said activated in activated sludge production
5. What is the difference between unit operation and unit processes
6. Explain why DDT was banned in USA
7. Write various objectives of wastewater treatment
8. Define Sewage Treatment Plant (STP), Effluent Treatment Plant (ETP) and Common Effluent Treatment Plant (CETP)
9. Explain why secondary settling tank is essentially provided in biological treatment
10. Explain why coagulants are added in wastewater

SECTION: B (Medium Answer Type Questions to be answered in about 500 words).

Attempt any Four questions

(Marks: 5 x 4=20)

1. Explain different types of solids present in a wastewater sample? How settleable solids are measured in a given sample of wastewater?
2. What is tertiary treatment? Also, explain eutrophication process in detail
3. Explain attached growth and suspended growth processes. Also, explain self cleansing mechanism of water bodies
4. Explain the role of aerobic and anaerobic microorganism in wastewater treatment. Also, explain conventional type of activated sludge process with the help of suitable diagrams
5. What is the difference between Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD)? Explain the methods to calculate BOD and COD of a given sample of water? 50 mL of the waste sample was added directly into a 300 mL BOD bottle. The initial DO of the wastewater sample was 8.8 mg/L and the final DO after 5 day was 3.9 mg/L. What is the 5 day BOD (BOD_5) of the sample?