



DEPARTMENT OF CIVIL ENGINEERING  
FINAL TERM EXAMINATION

**Subject:** Water Supply & Waste Water Management  
**Instructor:** Engr Muhammad Hasnain  
**Course code:** CT-243

**Duration:** 4 hrs.  
**Total Marks:** 50

**Note: Attempt all questions. Manage your time properly. Understanding question paper is the part of examination. Draw diagrams wherever necessary. Please refer to your notes for assistance. Copy from internet will be marked less.**

No. (01) (5+5)

- Define wastewater. Briefly describe types of wastewater.
- What are the characteristics of wastewater?

No. (02) (6+4)

- Why Treatment of wastewater is Necessary? Briefly describe wastewater treatment purpose.
- Elaborate why we need to measure wastewater flow.

No. (03) (6+4)

- Determine the 1-day BOD and ultimate BOD for a wastewater whose 5-day 20 °C BOD is 180mg/L. The reaction constant  $K = 0.24d^{-1}$  What would have been the 5-day BOD if it had been conducted on at 25 °C.
- Differentiate between biochemical oxygen demand (BOD) and chemical oxygen demand (COD).

No. (04) (7+3)

- A city has a projected population of 55,000 spread over area of 52 hectare. Find the design discharge for the separate sewer line by assuming rate of water supply of 248 LPCD and out of this total supply only 75 % reaches in sewer as wastewater. Make necessary assumption whenever necessary.
- Why biological characteristic is an important factor in wastewater treatment.

No. (05) (5+5)

- Briefly describe preliminary wastewater treatment process.
- What is meant by primary treatment of wastewater? Briefly describe sedimentation tank and clarifier.