

Mid-West University
Examinations Management Office

Semester End Examinations 2081

Bachelor level/ B.E. Civil/ 5th Semester

Time: 3 hours

Subject: Water Supply & Sanitary Engineering (CE453)

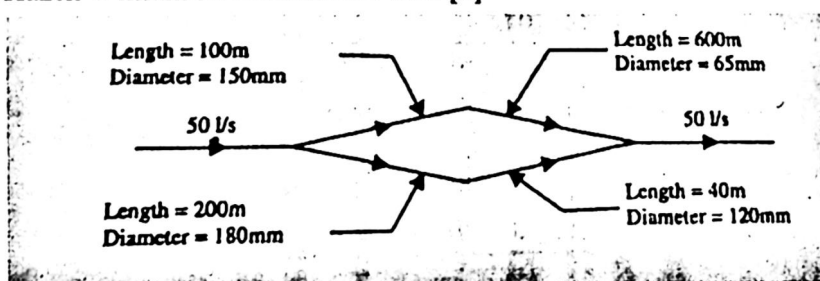
Full Marks: 50

Pass Marks: 25

- Attempt all the questions
 - Figures in the margin indicate full marks.
 - Assume suitable values, with a stipulation, if necessary.
 - Candidates are required to answer the questions in their own words as far as possible.
1. What are the importance and necessity of a water supply scheme? Draw a complete outline of water supply scheme. [2+2]
 2. Distinguish between shallow and deep well. Explain the factor governing the selection of water sources. [2+2]
 3. What do you mean by intake? Write about reservoir intake with the help of a neat sketch. [1+3]
 4. Define wholesome water. Explain different types of bacteria. [1+3]
 5. Explain the purposes of water treatment and write about sedimentation and coagulation. [1+3]
 6. Define disinfection. Explain in detail about chlorination. [3]
 7. List different layouts of the water distribution system with the figure. [3]
 8. Why valve and fitting are necessary on water supply. Describe the process of laying of pipes. [2+2]
 9. Design a rectangular plain sedimentation tank for a newly established town with a population of one lakh where $Q = 112 \text{ lpcd}$. [5]
 10. Calculate the total water demand in the design year in Sano Surkhet where, the survey was carried out in 2022 A.D. The survey data are as follows:
i) Population 800 ii) Number of cows 110 iii) Number of goats 200 iv) Number of dogs 105
v) One secondary school with students 450 vi) There is one V.D.C. office in the village.
Assume the annual population growth rate as 1.5%. The base period is 2 years and the design period is 15 years. [5]
 11. Estimate the population of a town for the year 2050 by any three methods with the help of following data. [5]

Year (B.S.)	1980	1990	2000	2010	2020
Population	75000	85000	115000	125000	145000

12. Calculate the discharge and velocity in each pipe in the network given below. Assume Hazen William's coefficient as 100. [5]



The End