

**GRADE V
WWTP OPERATOR
EXAMINATION INFORMATION**

The Grade V examination contains questions regarding the following subjects: safety practices, hazards encountered during operations, sampling and analysis of wastewater constituents, operation and maintenance procedures in preliminary, primary and secondary treatment unit processes, anaerobic sludge digestion and disinfection.

It also includes operation and maintenance of wastewater stabilization ponds and state regulations regarding the classification of wastewater treatment plants and operator certification. Questions may deal with sludge handling and evaluation of wastewater unit processes as well as overall plant performance.

In addition, the Grade V examination includes questions on process control, activated sludge process modifications and tertiary treatment, requirements and practices for water reclamation and reuse, supervision/management responsibilities such as energy management, safety program development, operator training and budget development and control. Examinees will be asked to write essay answers to some questions.

The Grade V examination contains some of the most complex mathematical questions asked at Grades I-IV. Examinees may be asked to write essay answers and calculate problems including heat value/gas generation from an anaerobic digester, BOD/nitrogenous BOD calculations, effects of process adjustments/changes, polymer usage/dose, efficiency and loading of solids thickening processes, disinfection options/dose/residual/cost, use/calculation of process control variables, hydraulic or organic loading rates, pumping efficiency/cost, nitrification and effects on plant operations and infiltration and inflow. The examinee should be familiar with typical calculations related to the subject matter listed in paragraph 1. Examinees must work out the math problems. Answers to math questions that are not supported by calculations will **NOT** receive credit.

Examinees are given 4 hours to complete the examination. The question format is as follows:

| | | |
|---------------------------------|---|----------------|
| 25 Multiple Choice Questions | @ | 2 point each |
| 5 Math Problems | @ | 8 points each |
| 1 Mandatory Essay Question | @ | 15 points each |
| 4 Essay Questions (Work 4 of 6) | @ | 10 points each |

TOTAL POINTS 145

Passing Score: To pass, you must achieve:

(a) a minimum total score of 101.5 points (70 percent), AND a score of at least 20 points (50 percent) on the Math Questions.