

Final Exam
Continuing Education Course #496
Wastewater Treatment CIP Management

1. What is the normal discharge for public wastewater treatment systems?
 - ☐ a. Recycle
 - ☐ b. Indirect
 - ☐ c. Direct
2. What are the three main categories for wastewater treatment methods?
 - ☐ a. Physical, Chemical, Radiological
 - ☐ b. Physical, Chemical, Biological
 - ☐ c. Osmosis, Chemical, Biological
3. Which does "CIP" NOT normally stand for?
 - ☐ a. Capital Improvement Program
 - ☐ b. Centralized Improvement Program
 - ☐ c. Capital Improvement Plan
4. Which is a main purpose of a CIP?
 - ☐ a. Carry out asset management objectives
 - ☐ b. Make maintenance easier
 - ☐ c. Spend the budget available
5. Which is NOT an example of an improvement to address climate change?
 - ☐ a. Population growth
 - ☐ b. Flood protection
 - ☐ c. Storm hardening
6. What is water reuse?
 - ☐ a. Chemical makeup water
 - ☐ b. Direct discharge
 - ☐ c. Recycling wastewater after advanced treatment
7. Which is NOT an example of improving redundancy?
 - ☐ a. Standby unit
 - ☐ b. Spare parts
 - ☐ c. Backup power
 - ☐ d. Emergency stop
8. When was the clean water act first enacted?
 - ☐ a. 1962
 - ☐ b. 1972
 - ☐ c. 1980

9. Which is NOT a conventional pollutant?
- ☐ a. Total Suspended Solids
 - ☐ b. Oil and Grease
 - ☐ c. Nutrients
10. Which is a term used for managing infrastructure to minimize cost while delivering desirable service levels?
- ☐ a. Asset Management
 - ☐ b. Plant Planning
 - ☐ c. O&M
11. What is lifecycle cost?
- ☐ a. Total cost of ownership
 - ☐ b. Operation and maintenance cost
 - ☐ c. Capital cost
12. Which are the first steps in the CIP planning process?
- ☐ a. Gather information and risk assessment
 - ☐ b. Gather information and condition assessment
 - ☐ c. Condition assessment and performance assessment
13. Which are three common assessments for treatment system CIP planning?
- ☐ a. Condition, performance, and climate change
 - ☐ b. Performance, risk, and field
 - ☐ c. Condition, performance, and risk
14. Which assessment is best after a permit violation?
- ☐ a. Condition
 - ☐ b. Performance
 - ☐ c. Risk
15. Which is a method for measuring steel thickness?
- ☐ a. Acoustic impact
 - ☐ b. GPR
 - ☐ c. Ultrasonic
16. What is a typical value for corrosion allowance?
- ☐ a. 1/16"
 - ☐ b. 1/4"
 - ☐ c. 1/2"
17. Which tank material is considered to have the shortest lifespan?
- ☐ a. Stainless Steel
 - ☐ b. Glass Lined Steel
 - ☐ c. Concrete
18. What is the remaining useful life for a 30 year old submerged 304 stainless steel in average condition?
- ☐ a. 10 years
 - ☐ b. 20 years
 - ☐ c. 30 years
19. What is a purpose of a performance test?

- ☐ a. Calculate likelihood of failure
 - ☐ b. Evaluate treatment efficiency
 - ☐ c. Identify redundancy
20. What does LOF stand for?
- ☐ a. Level of failure
 - ☐ b. Likelihood of failure
 - ☐ c. Likely overflow
21. Which type of risk is commonly considered more important?
- ☐ a. COF
 - ☐ b. LOF
22. What is NOT a common topic covered by a master plan report?
- ☐ a. Summarize assessment results
 - ☐ b. Schedule future projects
 - ☐ c. Recommend improvements
 - ☐ d. Cost estimates
23. Which are the two most important factors for selecting projects to proceed?
- ☐ a. Costs and Motivations
 - ☐ b. Operations and Maintenance
 - ☐ c. Remaining Useful Life and Sustainability
24. What can be done with a project when costs exceed the annual budget?
- ☐ a. Modify cost estimate to hide costs
 - ☐ b. Split into multiple smaller projects
 - ☐ c. Assume budget can be easily increased
25. What is the quarterly CIP program budget?
- ☐ a. Max spending per quarter
 - ☐ b. Dollar values down to the \$0.25
 - ☐ c. Rollover money added each quarter