101. The temperature versus DO relationship for wastewater is such that the
   a. higher the temperature, the higher the DO saturation level.
   b. higher the temperature, the lower the DO saturation level.
   c. lower the temperature, the lower the DO saturation level.
   d. none of the above.

102. The gas most commonly associated with fresh wastewater is
   a. carbon dioxide.
   b. carbon monoxide.
   c. hydrogen sulfide.
   d. oxygen.

103. Sources of harmful radioactive isotopes in wastewater collection systems include
   a. hospitals.
   b. research labs.
   c. tracer studies.
   d. all of the above.

104. If 5 lb/hr of a chemical is fed into a flow of 550 gpm, how many mg/L are being applied?
   a. 12.4 mg/L.
   b. 18.2 mg/L.
   c. 27.0 mg/L.
   d. 33.0 mg/L.

105. "Hz" stands for
   a. cycles per second.
   b. hand control.
   c. horizontal phase.
   d. polyphase.

106. When a fire hydrant is operated, it should be
   a. just opened enough to have a flow.
   b. opened fully.
   c. opened halfway.
   d. regulated to flow required.

107. Results obtained from pipe roughness coefficient tests can indicate whether or not
   a. contamination is entering the pipe.
   b. the ability of the pipe to transmit flow is being hindered.
   c. the quality of the wastewater in the pipe is deteriorating.
   d. the size and number of leaks are increasing.
108. Anaerobic wastewater is frequently corrosive to materials it contacts, especially
    a. coal tar enamel.
    b. concrete.
    c. copper.
    d. plastic.

109. The electrical disconnect for a pumping station motor can trip out under which
    one(s) of the following possibilities?
    a. clogged pump inlet.
    b. low temperature.
    c. strike by lightning.
    d. worn packing.

110. One of the electric motors in the facility has overheated and caught fire. Select the
    correct sequence of steps you would take.
    1. extinguish fire
    2. test
    3. repair
    4. shut off power
    5. remove tags and locks
    6. ascertain cause
    7. tag and lock out power
    a. 1, 2, 6, 4, 7, 3, 5
    b. 1, 4, 6, 7, 2, 3, 5
    c. 4, 1, 7, 6, 3, 5, 2
    d. 4, 6, 1, 7, 3, 5, 2

111. How can a closed circuit television unit with video tape help to evaluate the
    condition of a wastewater collection system?
    a. chemicals can be applied for root control.
    b. effectiveness of cleaning techniques can be studied under various conditions
       in collection system.
    c. service lines to homes can be inspected.
    d. TV camera can remove stoppages.

112. Pipe materials that are the least susceptible to corrosion by acids formed from
    gases generated in sewers are
    a. ACP.
    b. CIP.
    c. RCP.
    d. VCP.

113. Repairs of manholes include
    a. adjusting the alignment.
    b. correcting cavitation damages.
    c. raising frame and cover to grade.
    d. tightening packing.
114. One-ton chlorine tanks
   a. have fusible plugs located at valves.
   b. must be stored in an upright position.
   c. remove liquid chlorine from the top valve.
   d. should have locking devices to prevent the tanks from rolling when connected.

115. How many gallons of wastewater is contained in 100 feet of 10-inch force main?
   a. 40,800 gallons.
   b. 4,080 gallons.
   c. 408.0 gallons.
   d. 40.8 gallons.

116. The level of water can be measured by
   a. bubblers.
   b. electrical probes.
   c. floats.
   d. all of the above.

117. Wastewater is pumped through an 8-inch force main at the rate of 448 gallons per minute. Calculate velocity of flow in the line.
   a. 2.85 ft/sec.
   b. 42.95 ft/sec.
   c. 66.40 ft/sec.
   d. 100.00 ft/sec.

118. You treat 5,000,000 gallons per day. Eighteen mg/l of pure chlorine must be added. For one day's operation, how many pounds of chlorine must be added?
   a. 600.
   b. 650.
   c. 700.
   d. 750.

119. A rectangular wet well is 6 feet-6 inches wide by 8 feet long. When no pumps were running, the level of the wet well was rising 2 feet-9 inches in 4 minutes. What was the rate of flow of wastewater into the wet well?
   a. 267.4 gpm.
   b. 297.4 gpm.
   c. 1070 gpm.
   d. 2230 gpm.

120. To test if a 110 VAC outlet is hot, set VOM for
   a. 100 amps.
   b. 100 VAC.
   c. 250 amps.
   d. 250 VAC.

121. A chlorine gas mask should be provided
   a. just outside the chlorine room door.
   b. just inside the chlorine room door.
   c. in the plant superintendent's office.
   d. in a locked tamper-proof container.
122. Chlorine cylinders should be stored
   a. below ground level.
   b. in a clean, dry location.
   c. on their side.
   d. with the protective caps off.

123. Waste flowing at 15 percent of design flow through a 60-inch interceptor may allow
   a. photosynthesis to take place in the collection system.
   b. combined sewers to relieve the waste load.
   c. the waste to scour the collection system.

124. At a pumping station equipped with centrifugal pumps, what caused the discharge
   pressure to suddenly increase and the discharge quantity to suddenly decrease?
   a. a discharge valve was closed.
   b. a suction valve was closed.
   c. the pump amperage was decreased.
   d. the voltage was suddenly increased.

125. To reduce infiltration into the existing wastewater collection system, you should
   a. enforce ordinances that require roof drains to be discharged to street gutters
      or storm drains.
   b. insert plastic liners into sewer pipes.
   c. replace multi-holed manhole covers with no-hole covers.
   d. use higher pressures in force mains.

126. Which chemical may be used for odor control in a septic sewer system?
   a. calcium chloride.
   b. hydrogen peroxide.
   c. oxidized aluminum.
   d. sodium chloride.

127. Liners are installed in sewers to correct problems caused by
   a. grade alignment.
   b. grease.
   c. grit.
   d. infiltration.

128. To sample for pH, you should collect a
   a. composite sample.
   b. continuous sample.
   c. grab sample.
   d. regulated sample.

129. You have been directed to examine and review the plans and specifications for a
   new wastewater pump station prior to the advertising for construction bids. Which
   of the following is of least significance to your review?
   a. the clearance around and above pumps, motors, valves and control switch
      gear.
   b. the provisions for ingress and egress for both wet well and dry well.
   c. the size and geometry of the wet well.
   d. the specific colors for all piping.
130. Which one(s) of the following items should be inspected when responding to a lift station alarm at night?
   a. dry well.
   b. motor control center and power panel.
   c. operation of ventilation equipment.
   d. all of the above.

131. What affects the flow capacity of an installed sewer line?
   a. backfill material, manhole spacing, pipe size.
   b. burial depth, size, manhole spacing.
   c. pipe material, invert elevation, pipe size.
   d. pipe size, pipe material, grade.

132. How many pounds of chlorine gas can be drawn from a 150 pound cylinder in a 24-hour period at ordinary room temperature?
   a. 20.
   b. 40.
   c. 60.
   d. 65.

133. When litmus paper is immersed in an acid solution, the paper turns
   a. blue.
   b. red.
   c. violet.
   d. yellow.

134. What is the greatest distance at which manholes should be installed for an 8-inch sewer line?
   a. 100 feet.
   b. 200 feet.
   c. 300 feet.
   d. 400 feet.

135. Which of the following types of information should be recorded during TV inspection of a sewer?
   a. amount of material removed in cubic feet.
   b. distance from manhole to recorded observations.
   c. volume of water used.
   d. all of the above.

136. Disaster planning is
   a. having manuals ready so they can be read if a disaster occurs.
   b. something that, if properly done, will not need to be revised.
   c. useful in reducing confusion in the event of a disaster.
   d. none of the above.

137. The best discipline is
   a. authoritarian.
   b. general supervisory.
   c. self-discipline.
   d. theocratic.
138. Duties assigned to an industrial waste section include  
   a. attempting to locate and/or identify sources of wastes that upset wastewater treatment plants.  
   b. collecting data and making recommendations regarding industries that violate sewer-use ordinances.  
   c. inspecting discharges into collection system.  
   d. all of the above.

139. If a chemical costs $1.35 per 50 pounds, what would be the daily cost to treat 8 MGD at a dosage of 12 mg/L?  
   a. $13.12.  
   b. $21.62.  
   c. $28.34.  
   d. $562.00.

140. Using a labor cost of $3.40 per man hour, what is the labor cost of a job that requires 2 people 10 hours to complete?  
   a. $8.50.  
   b. $13.60.  
   c. $17.00.  
   d. $68.00.

141. Staffing a new system should be viewed primarily as the function of  
   a. every operator.  
   b. personnel department.  
   c. the employee.  
   d. the supervisory management.

142. Organization charts are helpful to show  
   a. how the collection system is organized.  
   b. how to locate sewers.  
   c. the structure of an agency.  
   b. the way to select solutions to problems.

143. Decentralization of organization refers to  
   a. nominating new supervisors.  
   b. looking at all positions, and possibly redelegating authority.  
   c. firing all employees and hiring new ones.  
   d. eliminating some departments.

144. Which one of the following would not be considered a natural event?  
   a. explosion.  
   b. flood.  
   c. lightning.  
   d. tornado.
145. A worker notices that a necessary piece of equipment is defective. The current job needs to be finished as soon as possible. The worker should
   a. consult with the other employees and reach a consensus agreement on what to do.
   b. continue the job but be cautious while using the defective equipment.
   c. report the defect but hold off completing the job until the equipment is repaired or replaced.
   d. stop all work and wait for the boss to come by the job site and make a decision.

146. The essence of control is
   a. written records.
   b. testing.
   c. evaluation.
   d. action.

147. While evaluating an applicant for employment, which of the following may enter into your decision?
   a. age.
   b. education level.
   c. minority classification.
   d. all of the above.

148. Public relations are important because we
   a. like our jobs.
   b. need lots of training.
   c. want to finish our work in a hurry.
   d. work for the public.

149. The best way to record all work done is through
   a. closed circuit TV.
   b. polaroid system.
   c. tape recorder.
   d. work order system.

150. The most important function of record-keeping is
   a. they record how much money was budgeted and how much we spent.
   b. they record the past and provide a sound basis on which to plan the future.
   c. they record what was done and when it was done.
   d. they record where we've been and how we got where we are today.
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