Questions Module 4

DRINKING WATER SUPPLY AND WASTEWATER INFILTRATION

Mark the correct alternative in yellow. Note that the correct answers can be 1 or up to all 4 alternatives.

1. Why is primary treatment (screening and grit removal) essential prior to discharge to an open infiltration basin as in the RENA treatment park?

a. To retard clogging of infiltration basins
b. To avoid floating particles in the basin
c. To decrease the sludge volume in the basin
d. All of the above

2. What is the is most energy consuming component/process in the Rena treatment park?

a. The primary step (screening and Salsnes filter)
b. The sludge removal and scraping of the infiltration basins
c. The percolation of water through the soil
d. The pumping of wastewater from Rena to the treatment park (8km)

3. In dual media filter (as you have seen in NRVA) how do you arrange the filter media

a. The denser particles are kept above the lighter particles
b. The lighter particles are kept above the denser particles
c. The particles with smaller diameter are in the bottom layer
d. The filter media consists of rounded particles above square particles

4. What do you mean by coagulation in water treatment

a. A process of adding lime to water
b. A process of raising the pH of the water
c. A process where smaller particles are brought together to form larger particles
d. A process of disinfecting contaminated water

5. Disinfection by ultra violet light is less effective for water with;

a. High turbidity
b. High *E.coli*
c. High pH
d. Low turbidity

6. In NRVA chlorination is succeeding UV-treatment in the treatment train Why?

a. Because UV light alters the chlor-compounds and thereby reduces the efficiency of chlorination
b. For practical reasons (as space)
c. Because of danger of explosion when chlorinated water is hit by UV-light

7. Why is pH often raised before drinking water enters the distribution system?

a. To prevent scale formation in water heaters
b. To kill the pathogens
c. To prevent the corrosion in the distribution system
d. To improve the taste of the water

8. What is the most common oxidation state of iron (Fe) in groundwater with a to high iron content?

e. Fe^{5+}
f. Fe^{5-}
g. Fe^{2+}
h. Fe^{3}

9. To remove iron (Fe) from groundwater the water can be aerated using:
    a. A cascade or fountain spraying the water onto a sandfilter
    b. An ejector and reinfiltration of the water to the groundwater reservoir
    c. Adding an oxidized compound
    d. Adding sodium bicarbonate (baking powder)

10. In the Vyredox method the iron is precipitated in the groundwater reservoir. What agent is catalyzing the process of iron oxidation?
    a. Bacteria
    b. Nanoparticles
    c. CaO
    d. HCO_3