



Try in the following questions

Question One (30 Marks)

1- a) Discuss using sketches the following method of water sedimentation:

Plain, With flocculator, Pulsator, Tube-settlers, and Super high rate.

b) Explain Coagulation in modern water treatment types and theory of their functions.

c) Design the super pulsator tanks and their inlet, outlet and sludge structures for a water treatment plant of 500,000 m³/day.

- Draw plan and sections for the designed basin with its structures.

Question Two (30 Marks)

a) Discuss the clogging phenomena in filtration processes and methods of overcomes.

b) Design the filtration house and connecting pipes in a water treatment plant of 90,000 m³/day. Draw plan and sections for the designed filtration house with its connecting pipes.

c) Discuss the disinfection by products in water treatment for common disinfectants.

Question Three (20 Marks)

a) Discuss with using sketches the difference methods employed in water desalinations.

b) Explain in details the use of Multistage Flash "MSF" Distillation (thermal evaporation) for sea water desalination (idea, advantage, disadvantages, flow diagrams).

Question Four (20 Marks)

a) "Hardness, Iron and Manganese in water supply are undesirable" Discuss with explaining the common method of removal.

b) Design and draw a water softening plant of flow 4800 m³/day, raw water hardness 370 mg/l, allowable hardness in treated water 50 mg/l, ion exchange capacity of used resin 10 kg/m³, capacity of regeneration salt 40 kg/m³.

With my best wishes

Prof. M. Elsheikh

This exam contribute by measuring in achieving Program Academic Standards NARS			
Question No.	Q1-a, Q1-b, Q2-a, Q3-a, Q4-a	Q2-c, Q3-b	Q1-c, Q2-b, Q4-b
	A-3	B-3	C-1
Skills	Knowledge & Understanding	Intellectual Skills	Professional Skills