Preview Assessment: Filtration

Name	Filtration
Instructions	
Multiple Attempts	This Test allows multiple attempts.
Force Completion	This Test can be saved and resumed later.

Question Completion Status:

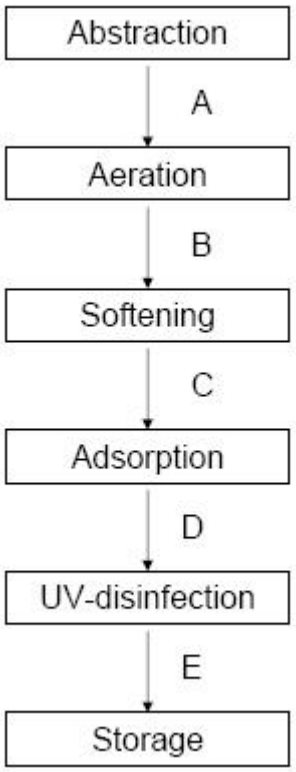
Question 1 **10 points** Save

What is the order of the back wash frequenty?

- Hours
- Days
- Months
- Years

Question 2 **10 points** Save

In the figure is a scheme shown of a ground water treatment plant. Where is filtration placed?
More answerd could be right.

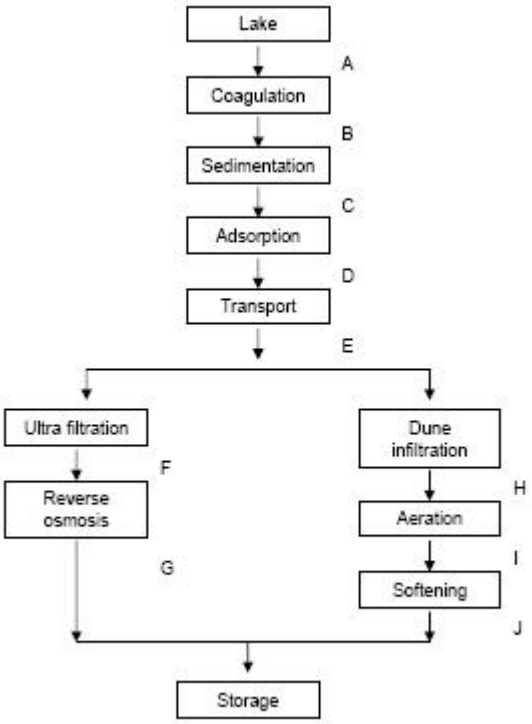


- A
- B
- C
- D

- [ ] E

Question 3 **10 points** Save

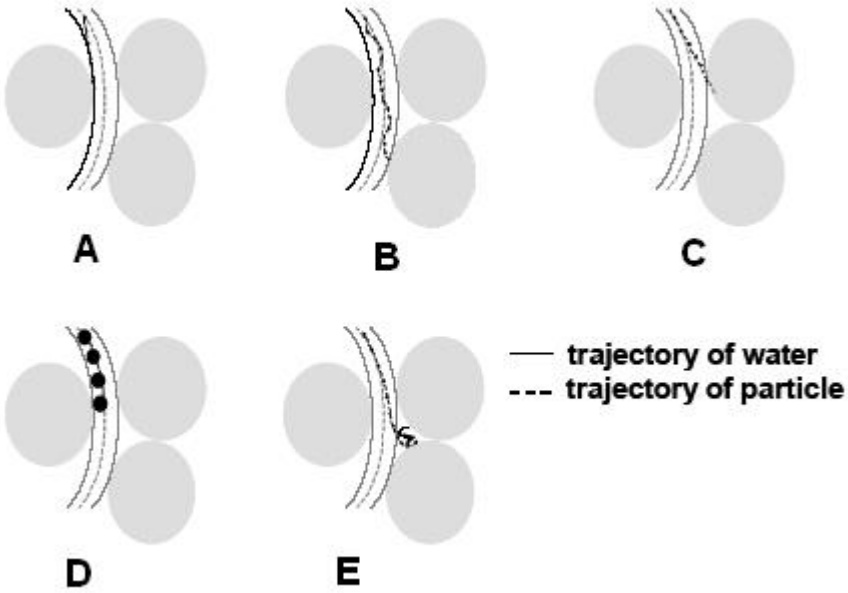
In the figure a scheme is shown of a ground water treatment plant. Where is filtration placed? More answerd could be right.



- [ ] A
- [ ] B
- [ ] C
- [ ] D
- [ ] E
- [ ] F
- [ ] G
- [ ] H
- [ ] I
- [ ] J

Question 4 **10 points** Save

In the figure is given the transport of impurities towards the grain. Which of the processes belongs to the figures?



- Inertia
- Sedimentation
- Turbulence
- Diffusion
- Interception

A.
B.
C.
D.
E.

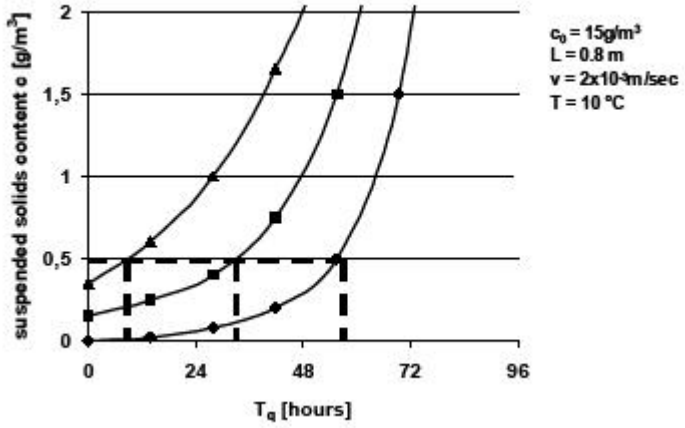
Question 5 **10 points** Save

What is the filtration velocity?

- less than 5 m/h
- between 5 and 20 m/h
- between 20 and 40 m/h
- more than 40 m/h

Question 6 **10 points** Save

In the figure you find results of different filter runs to obtain an optimally functioning filter. Which diameter of the filter material belongs to which line?



- d = 0.7 mm
- d = 0.8 mm
- d = 0.9 mm

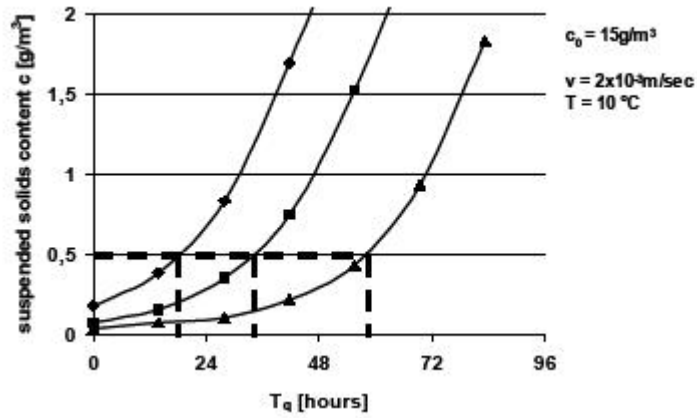
A.

B.

C.

Question 7 **10 points** Save

In the figure you find results of different filter runs to obtain an optimally functioning filter.
Which lenght of the filter belongs to which line?



- L = 1.0 m
- L = 1.2 m
- L = 1.5 m

A.

B.

C.

Question 8 **10 points** Save

What is the most common filter material?

- clay
- Dune sand
- River sand
- gravel

Question 9 **10 points** Save

When is dry filtration used?

- When the water has a high iron concentration.
- When the water has a high manganese concentration.
- When the water has a high hardness.
- When the water has a high ammonia concentration.

Question 10 **10 points** Save

It is possible to remove bacteria and virusses with a filter.

- True
- False

Question 11 **10 points** Save

Slow sand filters need to be backwashed every couple of days.

- True
- False

Question 12 **10 points** Save

After a cascade aeration a wet filtration step is installed for groundwater treatment.

Flow: 2000 m^3/h; Total surface area: 200 m^2; Filterbed heigth: 1.5 m; Supernatant water height: 1 m; Filterbed grain size: 1 mm; Temperature: 20^oC; Initial porosity: 0.4;

- 0.16 m
- 0.29 m
- 0.44 m
- 0.86 m

Question 13 **10 points** Save

The effluent quality should be improved. The suspended solid concentration in the effluent is

too high. The operator suggest 4 alternatives to improve the situation:

A: increase the bed height; B:change the sand with a finer sand fraction; C: lower the surface load; D: decrease Tr.

Order these alternatives in cost from high to low.

- Decrease Tr.
- Increase the bed height.
- Lower the surface load.
- Change the sand with a finer sand fraction.

Question 14 **10 points** Save

Multiple layer filtration consists of a filter bed with various leyers with different grain sizes.

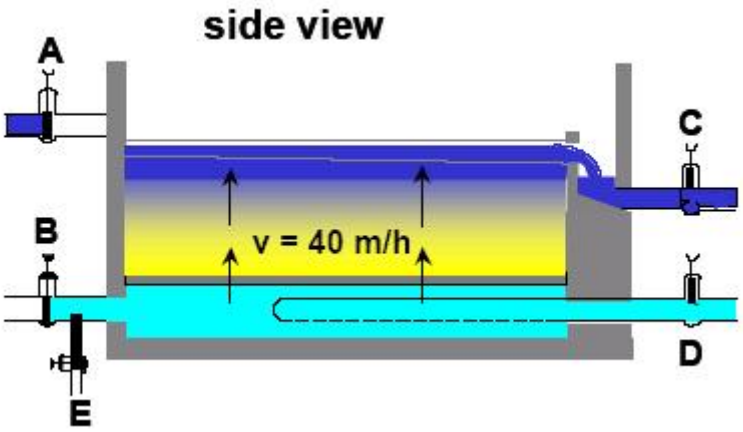
True or False:

In downward direction the grain size and the density of the material decreases.

- True
- False

Question 15 **10 points** Save

What is the order of opening and closing valves for backwashing. Use the figure.

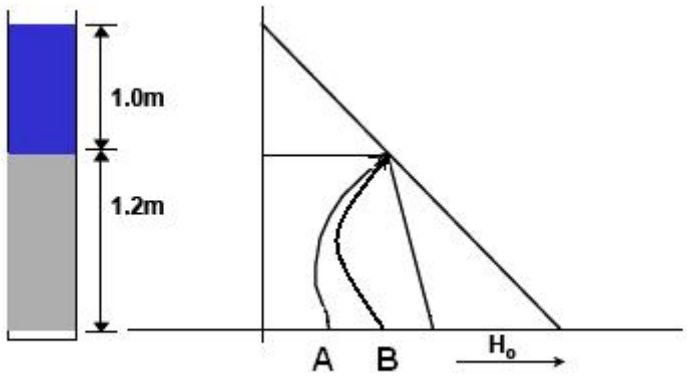


- Open valve A
- Open valve B
- Open valve C
- Open valve D
- Open valve E
- Close valve A
- Close valve B
- Close valve C

- Close valve D
- Close valve E

Question 16 **10 points** Save

In the figure is the progress of the filter bed resistance in time, the so callled Lindquist diagram shown for two times. Which of the lines, A or B, is the right line for the bed resistance at time 2?



- A
- B

Question 17 **10 points** Save

The appleid bed expansion depends on the diameter of the filter material. When the filter material has a diameter of 0.8 mm an expansion of 15 to 20% is used, while a diameter of 1.2 mm requires an expansion of .....

more or less than 15 to 20%?

- more
- less

Question 18 **10 points** Save

Is there a difference between the surface area of a rapid filtration and slow sand filtration?

- No there is no difference in surface area.
- Yes, there is a difference in surface area, rapid filtration needs more space than slow sand filtration.
- Yes, there is a difference in surface area, slow sand filtration.needs more space than rapid filtration

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