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Courses » Geoenvironmental Engineering (Environmental Geotechnology); Landfills, Slurry Ponds &

Contaminated Sites Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 8 - Week 7

Course outline

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Week 1

Week 2

Week 3

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Week 6

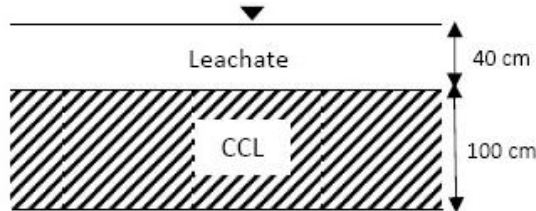
Week 7

- Lecture 22: Some Solved Examples
- Lecture 23: Subsurface Monitoring Around Landfills - Part 1
- Lecture 24: Subsurface Monitoring Around Landfills - Part 2
- Quiz : Assignment no. 7

Assignment no. 7

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. **Due on 2018-09-20, 23:59 IST.**

1) 40 cm of leachate is ponded over 100 cm compacted clay liner (as shown in figure) below **1 point** which secondary leachate collection system removes the leachate. Assume one-dimensional flow and steady state saturated condition. Compute the flow rate in litres per hectare per day. Hydraulic conductivity of compacted clay liner (CCL) is 1.0×10^{-8} cm/sec.



- 308
- 189
- 121
- 229

No, the answer is incorrect.

Score: 0

Accepted Answers:

121

2) Compute advective mass flux, J_A (in $\text{mg}/\text{cm}^2/\text{s}$) through the CCL given in Q1. Chloride concentration in leachate is 400 mg/l . **1 point**

- 4.8×10^{-7}
- 5.6×10^{-9}
- 2.4×10^{-6}

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3) Compute the advective breakthrough time, T_B (in years) for CCL in Q1. Assume porosity (n) of 0.4. **1 point**

- 48
- 91
- 121
- 74

No, the answer is incorrect.

Score: 0

Accepted Answers:

91

4) If CCL in Q1 is replaced by geocomposite clay liner (GCL) of thickness 8 mm having hydraulic conductivity 1/100 times of CCL and porosity of 0.5, compute advective breakthrough time (in years) for GCL. **1 point**

- 2.5
- 5.8
- 6.7
- 1.5

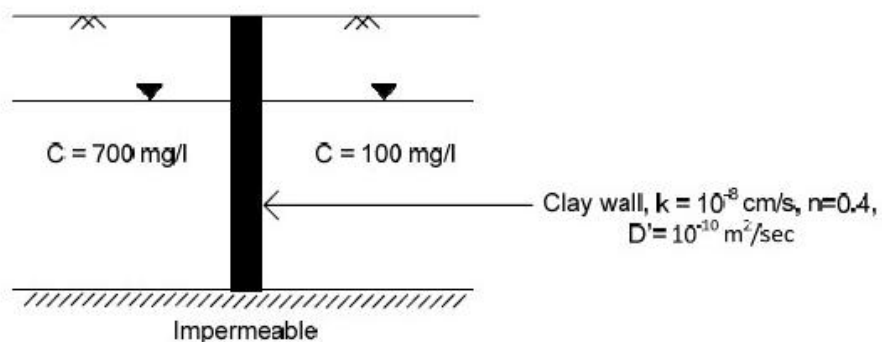
No, the answer is incorrect.

Score: 0

Accepted Answers:

2.5

5) Given below is a clay cut-off wall (1 m thick) installed in sub-soil with groundwater having chloride contamination. Assuming one-dimensional flow and steady state conditions, compute diffusive mass flux (in $\text{mg}/\text{cm}^2/\text{s}$) through the clay wall given that the effective diffusion coefficient (D') for non-reactive chloride solute is $10^{-10} \text{ m}^2/\text{sec}$, hydraulic conductivity (k) of clay layer is 10^{-8} cm/s and porosity (n) is 0.4. **1 point**



- 6.5×10^{-5}
- 4.8×10^{-8}
- 1.2×10^{-6}
- 2.4×10^{-9}

No, the answer is incorrect.

Score: 0

Accepted Answers:

2.4×10^{-9}

6) Special Filter Tip Vacuum Samplers are used in conjunction with: **1 point**

- Augers
- Electromagnetic Probes
- Cone penetrometers
- SPT test

No, the answer is incorrect.

Score: 0

Accepted Answers:

Cone penetrometers

7) Lysimeters are used:

1 point

- For surface water sampling
- Moisture sampling in the vadose zone
- Gas sampling above the landfill

No, the answer is incorrect.

Score: 0

Accepted Answers:

Moisture sampling in the vadose zone

8) Geophysical methods can help to identify:

1 point

- Different types of contaminants in ground water
- Flow rate of contaminant plume
- Extent of subsurface contamination

No, the answer is incorrect.

Score: 0

Accepted Answers:

Extent of subsurface contamination

9) Which of the following types of sampler is used to collect "whole sample" from the saturated soil zone? **1 point**

- Mild steel
- Stainless steel
- Glass

No, the answer is incorrect.

Score: 0

Accepted Answers:

Stainless steel

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