Exercise 1

A 25 g/l solution of a tracer was discharged into a stream at a constant rate of 10 cm^3/s. The background concentration of the tracer in the stream water was found to be zero. At a downstream section sufficiently far away, the salt was found to reach an equilibrium concentration of 5 parts per billion.

i) Estimate the stream discharge (example from Subramanya, 2008).
ii) What happens to the computed discharge if infiltration along the riverbed is high and 10% of the diluted salt gets lost?
iii) List other possible sources of error.

Exercise 2

Compute discharge Q at the sampling site, knowing that the ground conductivity L_0 is 550 µS and the slope gradient a is 0.0003. For salt dilution 1 kg of salt was used.

Table 1 Measured conductivity at the sampling site after injection of a "gulp" of salt dilution.

Time	(min)	0	1	2	3	4	5	6	7	8	9	10	11	12	13
L_i	(µS)	550	650	950	850	750	650	600	575	560	550	550	550	550	550

Exercise 3

You are interested in measuring discharge of the glacierized catchment of Chhota Shigri during an ablation period. Explain how you would measure it if you need daily or hourly measurements.

i) Which methods would you choose and why?
ii) Which are the advantages or disadvantages of these methods?

Note: *For exercise solutions go through the lecture and summary.*