CE 203 Comp Question 2015

Your consulting firm has been tasked with determining the main runoff generation mechanism in a small, fairly flat, agricultural watershed, about 10 acres in area. It is a first order watershed, meaning that runoff in the stream will only be affected by the hillslope processes from your watershed (there are no other upstream locations generating runoff).

Your budget will let you perform 4 of the following tasks:

1. Make a total of 30 water isotope (or other solute) measurements.
2. Install 2 groundwater bores and monitor water levels.
3. Install soil moisture sensors at 3 depths in 2 locations.
4. Make measurements of infiltration capacity (K_{sat}) at 20 points over the catchment
5. Install a rain gauge measuring rainfall depths every 1 minute.
6. Hire an observer to walk through the catchment during rain storms and observe what happens
7. Install a stream gauge to measure the catchment and baseflow response

You have the option of doing only *some* of these tasks before making a decision about what to measure next and what it all means.

Outline a plan to make your initial measurements, interpret them, decide what to measure next, and how confident you expect you will be in your prediction about runoff generation mechanisms based on these measurements.