1. The groundwater underneath a hazardous waste disposal site is observed to be contaminated by trichloroethylene (TCE). The data obtained for groundwater flow are as follows:

Aquifer porosity = 0.40

Aquifer hydraulic conductivity = 30 m/d

Groundwater hydraulic gradient = 0.01

Bulk density of aquifer materials = 1.8 g/cm3

Fraction of organic carbon of aquifer materials = 0.02

Koc = 0.63 Kow

1. Estimate groundwater velocity (m/d)
2. Estimate the retardation factor for TCE
3. Estimate the TCE transport velocity (m/d)
4. Estimate the time required for TCE to travel a distance of 200 m down gradient.
5. The distance between TCE plume and a drinking well 200 m down gradient of groundwater flow is 200 m. Ignoring dispersion, what would be the maximum concentration of TCE observed If TCE is degraded with a half–life of 6000 h. Assume that the initial TCE concentration is 50 mg/L.