CVEN 463 "Engineering Hydrology"

Potential Closed-book Questions for Exam #2

Give complete and intelligible definitions for the following:

Curve Number	Saturated Hydraulic Conductivity
GIS	DEM
Isochrone	Base Flow
Convolution	Hydraulic Length
Centroid Length	HSG
AMC	Time of Concentration
Lag Time	Recursion
Shapefile	

What is the difference between "raster" and "vector" data? In which form(s) could a stream network be stored? In which form(s) could elevation data be stored? In which form(s) could land cover be stored? How efficient is each of these options in terms of data storage?

What is HEC-HMS? Who produces it? What program did HEC-HMS replace?

What is the minimum possible infiltration rate according to: (a) Green-Ampt, and (b) Horton infiltration models? What happens if rainfall intensity is less than these values?

What are the 3 pathways for precipitation to become streamflow? What is the representative time-scale for each pathway? If it has not rained for a long time but streamflow is present, which pathway is active?

What is the lower limit for watershed size for use of the Snyder synthetic unit hydrograph? Why is this limit in effect?

I have a 3 hour unit hydrograph, and an upcoming storm will have an effective duration of 9 hours. What method(s) could I use to apply my 3 hour unit hydrograph to this storm?

What is the standard assumption used in the Curve Number method for initial abstractions? When might that assumption be invalid?

What is the meaning of the S parameter in the Curve Number method?

What role does pre-existing soil moisture have on runoff processes in general? How is it accounted for in the Green-Ampt method? … in the Curve Number method? … in the Horton infiltration method?