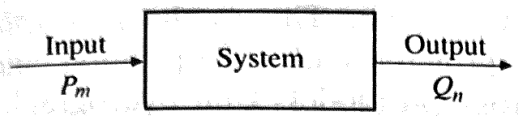
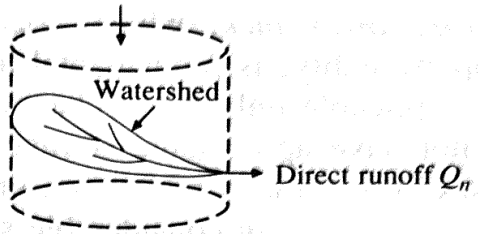
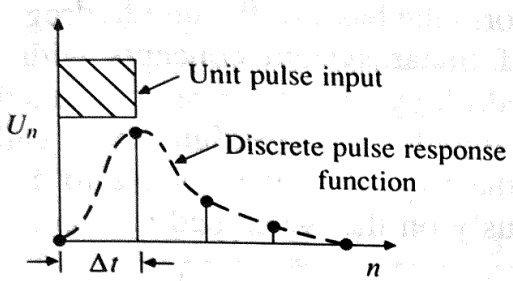
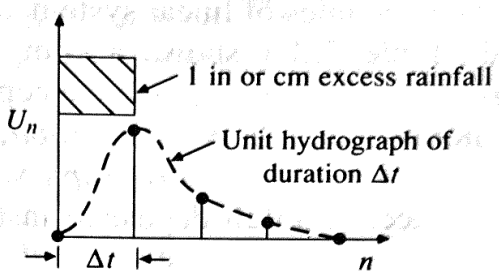
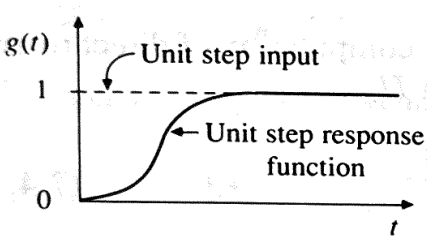
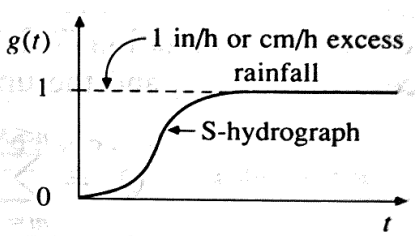
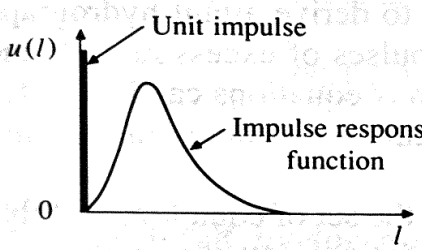
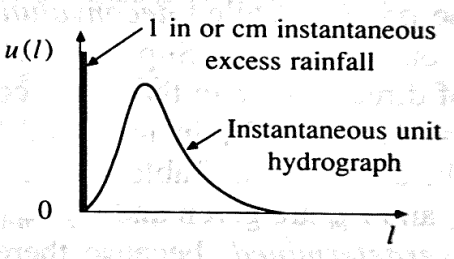
TABLE 7.3.1
Comparison of linear system and unit hydrograph concepts

Linear system	Unit hydrograph
1.  $n \leqq M$ $Q_n = \sum_{m=1} P_m U_{n-m+1}$	1. Excess rainfall P_m 
2. 	2. 
3. 	3. 
4. 	4. 
5. System starts from rest.	5. Direct runoff hydrograph starts from zero. All previous rainfall is absorbed by watershed (initial abstraction or loss).
6. System is linear.	6. Direct runoff hydrograph is calculated using principles of proportionality and superposition.
7. Transfer function has constant coefficients.	7. Watershed response is time invariant, not changing from one storm to another.
8. System obeys continuity. $\frac{dS}{dt} = I(t) - Q(t)$	8. Total depths of excess rainfall and direct runoff are equal. $\sum_n Q_n = \sum_m P_m$