

所別：水文科學研究所碩士班 一般生 科目：水文學(含地表水，地下水)

1. Define and explain the following terms:

- (1) Dewpoint (5%)
- (2) Latent heat of vaporization (5%)
- (3) Rational Formula (5%)
- (4) Storage coefficient of Aquifer (5%)
- (5) Coefficient of storage (5%)
- (6) Safety yield (5%)
- (7) Confined Aquifer (5%)

2. Illustrate how logging might change the following parameters in a hydrograph(2.5%): lag time(2.5%), peak discharge(2.5%), minimum flow(2.5%), baseflow contribution(2.5%), stormflow contribution(2.5%), rising limb(2.5%), and recession limb(2.5%).

3. Describe and illustrate with figures the following hydrologic flowpaths: (1) infiltration-excess (Hortonian) overland flow(5%); (2) saturated overland flow(5%); (3) macropore flow(5%). In each diagram show a stream, subsurface, and water table.

4. Discharge rate of a 1-hr unit hydrograph $U(1,t)$ is given in the following table. Please calculate the discharge rate of the 4-hr unit hydrograph $U(4,t)$ in a table from time = 0 hr to 8 hr. (15%)

Time (hr)	0	1	2	3	4	5
Q (CMS)	0	200	600	800	400	0

5. A rainfall event with rainfall intensity $I = 60$ mm/hr happened on a fan-shaped area shown as below. Assuming that the rainfall is uniformly distributed, the runoff coefficient $C = 0.5$, and the time of concentration $t_c = 10$ min. Please calculate the peak-flow discharge rate (in CMS) while
- (1) the rainfall duration is equal to 5 min. (5%)
 - (2) the rainfall duration is equal to 10 min. (5%)
 - (3) the rainfall duration is equal to 20 min. (5%)

