國立中央大學97學年度碩士班考試入學試題卷

所別：水文與海洋科學研究所碩士班　　科目：水文學(含地表水，地下水)　共 1 頁 第 1 頁

＊請在試卷答案卷（卡）內作答

1. Define and explain the following terms:
   (1) Dewpoint （露點）(5%)
   (2) Latent heat of vaporization（蒸發潛熱） (5%)
   (3) Rational Formula（合理化公式） (5%)
   (4) Specific Yield （比出水量） (5%)
   (5) Coefficient of Storage （貯蓄係數） (5%)
   (6) Safety yield （安全出水量）(5%)

2. Please describe four methods to estimate the local probable maximum precipitation （區域可能最大降水量）. (10%)

3. Illustrate how logging （伐木） 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%).

4. Describe the procedures of at least two methods for base flow separation（基流分離）(10%)

5. What are Darcy's law （達西定理） and its limitation? (10%)

6. Discharge rate (Q) of a 1-hr unit hydrograph U(1,t) （一小時單位歷線）is given in the following table. Please calculate the discharge rate of the 4-hr unit hydrograph U(4,t) （四小時單位歷線）in a table from time = 0 hr to 8 hr. (10%)

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

7. A rainfall event with rainfall intensity（降雨強度） I = 60 mm/hr happened on a fan-shaped area （扇形地區）shown as below. Assuming that the rainfall is uniformly distributed, the runoff coefficient（徑流係數）C = 0.5, and the time of concentration（集流時間） tc = 10 min. Please calculate the peak-flow discharge rate （尖峰流量）(in CMS) while
   (1) the rainfall duration is equal to 5 min. (5%)
   (2) the rainfall duration is equal to 20 min. (5%)