

臺灣綜合大學系統 106 學年度學士班轉學生聯合招生考試試題

科目名稱	水文學	類組代碼	D36
		科目碼	D3603

※本項考試依簡章規定各考科均「不可以」使用計算機

本科試題共計 1 頁

- Please use ">", "<" or "=" to compare the following factors and briefly explain your reasons in the answer sheet.
 - In the same watershed, runoff coefficient before urbanization _ runoff coefficient after urbanization. (2)
 - In the same watershed, total streamflow volume of the 2 hour unit hydrograph __ total streamflow volume of the 3 hour unit hydrograph. (3)
 - In the same watershed, number of 2nd order streams __ number of 3rd order streams. (2)
 - Same soil, the conductivity of saturated condition _ the conductivity of unsaturated condition. (3)
- Please explain the difference between the two terms:
 - Relative humidity and specific humidity. (6)
 - Runoff coefficient and curve number. (6)
 - A hyetograph and a hydrograph. (6)
- Short answers (please explain what they are)
 - Time of concentration. (4)
 - Excess rainfall. (4)
 - Rating Curve. (4)

- After 6/1's storm event, Chairman Lo analyzed the streamflow data (watershed area: 30 km²) from Water Resources Agency website (Shown below). Please estimate the Φ -index and the W-index. (12)

Time (hour)	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5
Direct runoff (m ³ /s)	0	0	7	35	75	120	90	65	45	30	18	10	5	0
Rainfall (mm)			7		12		20		8		3			

- The S-hydrograph tabulated below is for a basin of area 79.2 km²:

Time (hr)	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
S Hydrograph (m ³ /s)	0	40	160	250	320	370	405	425	435	440	440	440

What is the original unit hydrograph to get this S-hydrograph? (6) What is the direct runoff hydrograph after 2 mm depth of the first hour and 3 mm of the next 1.5 hour effective rainfall? (15)

- Assume the annual maximum daily rainfall is normal distribution. The median of the daily rainfall data series is 500 mm. The standard deviation of the daily rainfall data series is 250 mm. Please calculate the magnitude of the design rainfall of the 2 year return period. (12)
- In Muskingum method, if we assume the wedge storage is $KX(A \cdot I - B \cdot Q)$, not $KX(I - Q)$. Please derive a new set of C_1 , C_2 , C_3 for Muskingum method (15).