國立成功大學

112學年度碩士班招生考試試題

編　號：163

系　所：自然災害減災及管理國際碩士學位學程

科　目：水文學

日　期：0206

節　次：第 3 節

備　註：不可使用計算機

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※ 考生請注意：本試題不可使用計算機。　請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Please explain following terms

   (a). Evapotranspiration. (5)

   (b). S Hydrograph. (5)

   (c). Suspended Load. (5)

   (d). Excess Rainfall. (5)

2. Please explain what the Rational Formula is? What are the major assumptions (15)

3. Please explain the difference between the two terms:

   (a). Runoff coefficient and curve number. (10)

   (b). 逕流分擔 and 出流管制. (10)

4. The inflow hydrograph of a reservoir is tabulated below. When t = 0 day, the storage (S) of the reservoir is 42 $m^3/s/day$ and the outflow (Q) is 0 m^3/s. Please calculate the outflow of the 3rd day when Δt = 1 day and the relationship of outflow (Q) and storage (S) is shown as (20)

$$Q=\begin{cases}\frac{1}{5}\left(\frac{2S}{\Delta t}+Q-100\right) & for \quad \frac{2S}{\Delta t}+Q>100\\ 0 & otherwise\end{cases}$$

Time (days) t	0	1	2	3	4	5	6	7	8	9
Inflow (m^3/s)	0	12	25	38	50	55	45	35	20	10

5. After a storm event, the hard-working student, Mr. Hwang, decided to check the streamflow data from Water Resources Agency website (Shown below). Assume the baseflow remained 10 m^3/s during the recorded period.

Time (h)	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
Streamflow (m^3/s)	10	30	110	190	240	320	380	370	270	160	100	40	10

(a). If the effective rainfall data is shown below, what is the watershed area? (10)

Time (hr)	0~1.5	1.5~3
ERH (cm)	2.0	3.0

(b). What is the Unit Hydrograph (1hr, 1cm)? (15)