

※ 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. [20 pts] Please give a brief description as to *Hydrological Cycle (Water Cycle)* and also draw the cycle. Note: You must include at least the following six major hydrological processes: precipitation, infiltration, transpiration, evaporation, surface runoff, and groundwater flow, in the cycle.
2. [20 pts] Please write down the Chinese names respectively translated from the following words (a) precipitation, (b) infiltration, (c) transpiration, (d) evapotranspiration, (e) surface runoff, and (f) groundwater flow.
3. [20 pts] What is the hydrological budget? Please explain.
4. [20 pts] Let us consider two basins and assume the precipitation pattern to be mainly orographic. Basin A is near the coastline and the ground elevation is relatively flat. Basin B is at the slope of the mountain range where the ground elevation changes significantly. Which of the two methods: Thiessen Polygon Method, and Isohyetal Method would you use to obtain the areal precipitation for Basin A and why? Which method would be used for Basin B and why? (Please state the critical points and do not spend much time on detailed descriptions.)
5. [20 pts] Given the rainfall data and the percentage of the drainage area for the gauge as listed in Table 1, please calculate the average rainfall over the area using (a) the arithmetic mean and (b) the Thiessen polygon weighting system.

Gauge number	% Area	Precipitation
1	5	1.56
2	4	2.95
3	3	3.44
4	15	2.91
5	11	4.17
6	19	4.21
7	4	2.7
8	7	2.45
9	21	3.88
10	6	3.98
11	5	2.51

Table I.