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國立臺灣大學 103 學年度碩士班招生考試試題
科目：離散數學(A)
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共 8 大題。總分 100 分。

1. [10 points] What is "the pigeon-hole principle"?.

2. [10 points] What is "the rule of contradiction"?

3. [10 points] How many ways can we arrange all ASCII characters in "discrete mathematics" around a round table?

4. [15 points] As above. What is the probability that the arrangement has adjacent "e" and "a"?

5. [10 points] Let A={} and B={A, 0}. What is the power set of A×B?

6. [15 points] As above. Let C={B, 0, 1}. What is the cardinality of B×C?

7. [15 points] Use "~", "∧", "∨" to represent "not", "and", "or" operators. Simplify $(a \wedge b \wedge c) \vee (a \wedge b \wedge \sim c) \vee (\sim a \wedge b \wedge \sim c)$ with a minimum number of operators.

8. [15 points] Write an algorithm to generate all the relations (a, b) from B to C where a in B and b in C.

試題隨卷繳回