

2004 Paper 1 Question 2

Discrete Mathematics

(a) Given a set A , define the following terms:

(i) a relation on A ; [1 mark]

(ii) an equivalence relation on A ; [1 mark]

(iii) a partial order on A ; [1 mark]

(iv) a well-founded relation on A . [1 mark]

(b) If two relations $<_A$ on A and $<_B$ on B are well founded, show that the lexicographic relation and product relation on $A \times B$ are both well founded. [6 marks]