

## 1999 Artificial Intelligence Question 2. WFC

(a) Identify six application areas where reasoning under conditions of uncertainty is necessary, and explain briefly why. [12 marks].

(b) Pick one of these areas and design four inference rules that might be used for reasoning in that domain. [8 marks].

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**Solution Guidelines.**

The notes are full of this type of example. A good answer will choose a selection that have different reasons for uncertainty.

Prescribing antibiotics, because doctors' rules are qualified by a probability.

Packing chocolates, because position on belt has dimensional variation.

Identifying regions in an image, because region outlines are ambiguous.

Oil prospecting, because some information is hidden.

Automatic vehicle guidance, because other drivers' actions are unknown.

Controlling a lift in a building, because using a fuzzy control method.

Taking lift control as an example, two fuzzy logic rules for moving the lift car up are given in the notes, and two more could relate to the symmetric case of moving the lift down.