THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATION
Professional Graduate Diploma

KNOWLEDGE BASED SYSTEMS

9th May 2002, 10.00 a.m.-1.00 p.m.
Answer THREE questions out of FIVE. All questions carry equal marks.
Time: THREE hours.

*The marks given in brackets are **indicative** of the weight given to each part of the question.*

1. *a)* Explain the principles of Case Based Reasoning (CBR) and describe the main techniques involved.
(12 marks)

b) Compare CBR with neural networks and rule based expert systems. **(13 marks)**

2. *a)* Explain why uncertainty management is necessary in expert systems. **(9 marks)**

b) Use diagrams and examples to explain the concept of fuzzy sets and how associated operations work.
(16 marks)

3. *a)* If an organisation had a knowledge management strategy, what would that mean? **(10 marks)**

b) Describe, with examples, the process such an organisation would go through to elicit business knowledge from key staff. **(15 marks)**

4. *a)* Data mining is the process of extracting patterns and relationships from data. Describe two AI based algorithms that would commonly be used as part of a data mining process. **(15 marks)**

b) It is said that 70% of the effort of a data mining project does not involve modelling at all. What activities would take place during this time? **(10 marks)**

5. *a)* Why do search techniques form the basis of many AI applications? **(10 marks)**

b) For each of the following search techniques, describe how the algorithm works and provide an example of how it would be used.
i) Breadth first
ii) Depth first **(15 marks)**