

Questions on “Expert Systems”

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1. An expert system consists of three major components: a knowledge base, an inference engine, and an explanation module. What are the role and functions of each component? How does a knowledge base look like? How does the inference engine make inferences? Why is the explanation module important?
2. Dendral was one of the earliest expert-system projects. What was the task or the problem to solve? What was the method to solve this problem? How does a Dendral rule look like? Give examples. What was the knowledge base of Dendral? What was the inference engine of Dendral? Did Dendral have an explanation module?
3. What is the significance of the expert-system approach to problem solving in the history of AI? How did it differ from, for example, means-ends analysis? How does it compare with AI approaches focusing on general mechanisms of intelligence?
4. What are the typical application areas of expert systems? Where were expert systems relatively successful?
5. For each of the following expert systems, explain their (1) task, (2) inference rules, (3) system architecture (if applicable).
 - (a) SRI's CBC
 - (b) MYCIN
 - (c) PROSPECTOR
 - (d) INTERIST-1
 - (e) XCON