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EXPERT SYSTEM

CHAPTER 1

1. Which of the following is an element of an expert system?
2. User mode b. **agenda c.** expert d. experience
3. What is an expert system?

An expert system is a program that attempts to mimic human expertise by applying inference methods to a specific body of knowledge.

1. State three differences between Expert systems and Conventional systems.

|  |  |
| --- | --- |
| Expert system | Conventional system |
| Knowledge is fragmented, implicit and is difficult to communicate except in small “chunks”. | Knowledge is complete and explicit |
| Rules are complex and conditional | Rules are simple with few conditions |
| Problem-solving demands dynamic, context-driven, rules ,relationship | Problem-solving demands are predictable and repetitive sequences of actions. |

1. Who is an EXPERT?

Expertise is task-specific knowledge acquired and developed from training, reading and experience.

1. In 1960, ---------------- and ---------------- wrote computer programs to test the hypothesis that intelligent behavior resulted from heuristic search.

**Answer**: Allan Newell, Herbert Simon

CHAPTER 2

1. An expert system can be used anywhere, any time.
   1. **True** b. False
2. Human experts are 100% reliable or consistent
3. True b. **False**
4. Experts may not be good at explaining decisions
5. **True**  b. False
6. Pick the odd one out. Problems with Expert Systems
7. Limited domain
8. Experts needed to setup and maintain system
9. No “common sense”
10. **None of the above**
11. DENDRAL: Used to identify the structure of chemical compounds.
12. **True**  b. False

**CHAPTER 3**

1. Which of the following is/are not expert system development tools?
2. Symbolic Programming
3. ES Shells
4. Human expert
5. Conventional Programming
6. If an ES gives a wrong conclusion, it may be difficult to know whether this was caused by an error in the system or by an error in the information given to it.
7. **True**  b. False
8. An ideal ES should include which of the following?
9. **Symbolic processing**.
10. Open to inspection
11. technical capabilities
12. Which of the following does not describe Expert system?
13. Easily modified,
14. Heuristic
15. **Symbolic processing**
16. Open to inspection
17. One of the disadvantages of ES is Expert systems are difficult and expensive to develop and maintain.
18. **True**  b. False

**CHAPTER 4**

1. State the Three-phase process in Decision making process

**Intelligence phase, Design phase and Choice phase**

1. Explain the phases stated above in (Q16)
   1. **Intelligence phase**: collect the necessary information
   2. **Design phase**: method for considering data is designed
   3. **Choice phase**: select alternative
2. A representation of reality is called -------

Ans. **Model**

1. ---------- is sequence of steps

Ans. **Algorithm**

1. ------- are categories of data considered in algorithm

Ans.

**The expert system development lifecycle**

**CHAPTER 5**

1. State the Phase 2: System analysis & design
   1. Produce conceptual design
   2. Decide development strategy
   3. Decide sources of knowledge, and ensure co-operation
   4. Select computer resources
   5. Perform a feasibility study
   6. Perform a cost-benefit analysis
2. State the phase 1: project initialization
   1. Problem definition
   2. Needs assessment
   3. Evaluation of alternative solutions
   4. Verification that an ES approach is appropriate
   5. Consideration of management issues
3. State Phase 4: System development
   1. Build the knowledge base
   2. Test, evaluate and improve the knowledge base
   3. Plan for integration
4. State Phase 5: Implementation
   1. Ensure acceptance by users
   2. Install, demonstrate and deploy the system
   3. Arrange orientation and training for the users
   4. Ensure security
   5. Provide documentation
   6. Arrange for integration and field testing
5. State Phase 3: Prototyping
   1. Build a small prototype
   2. Test, improve and expand it
   3. Demonstrate and analyse feasibility
   4. Complete the design