

--Question Starting--

Match the following approaches to AI with their respective problem-solving techniques and significance:

1. Turing Test and Rational Agent Approaches 2. State Space Representation and Heuristic Search Techniques 3. Game Playing and Min-Max Search

A. Formalize decision-making under uncertainty, emphasizing autonomous actions and environment interaction B. Evaluate whether a machine exhibits human-like intelligence, focusing on human indistinguishability C. Explore problem spaces systematically to find optimal solutions, often using pruning techniques D. Model strategic interactions, especially adversarial scenarios, to determine best moves

Choose the correct answer from the options given below:

(1) 1-B, 2-C, 3-D

(2) 1-A, 2-D, 3-B

(3) 1-C, 2-A, 3-D

(4) 1-B, 2-A, 3-C

Answer Key: 4

Solution:

? Turing Test and Rational Agent Approaches are primarily concerned with evaluating machine intelligence and autonomous decision-making, which aligns with the human-like assessment and autonomous behavior perspectives, making options B and A relevant respectively.

? State Space Representation and Heuristic Search Techniques involve exploring systematically the entire problem space, employing heuristics to prune and find solutions efficiently, corresponding to options C and D.

? Game Playing and Min-Max Search are about strategic decision-making in adversarial environments, directly related to modeling opponent moves and determining optimal strategies, fitting with options D and C.

Therefore, the matching that correctly aligns these techniques and their significance is option (4). Hence, option (4) is the right answer.

--Question Starting--

3. Match the following software design principles with their core objectives:

1. Abstraction, Architecture, Patterns, Separation of Concerns 2. Modularity, Information Hiding, Functional Independence, Cohesion and Coupling 3. Object-Oriented Design, Data Design, Architectural Design, User Interface Design, Component Level Design

A. Focuses on breaking down complex systems into manageable units with minimal dependencies B. Emphasizes defining high-level structures, reusable templates, and isolating implementation details C. Ensures that components are closely related internally but loosely connected externally; promotes reuse and flexibility D. Centers on organizing data and behaviors to model real-world entities effectively

Choose the correct answer from the options given below:

(1) 1-B, 2-C, 3-D

(2) 1-A, 2-D, 3-C

(3) 1-C, 2-B, 3-A

(4) 1-D, 2-A, 3-B

Answer Key: 1

Solution:

? Abstraction, Architecture, Patterns, and Separation of Concerns aim at defining high-level system structures, templates, and isolating implementation details, aligning with options B and C.

? Modularity, Information Hiding, Functional Independence, Cohesion, and Coupling focus on decomposing the system into loosely coupled modules with minimal dependencies, matching option A.

? Object-Oriented Design, Data Design, Architectural Design, User Interface Design, and Component Level Design are about organizing data and behaviors to model real-world entities effectively, corresponding to option D.

Hence, the correct match is option (1).