S D M Institute of Technology (SDMIT), Ujire
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE ENGINEERING

Assignment Quiz (Objective Type Questions)

Student Name:	**USN:**	**Total Marks: 40**
Course Name: Principles of Artificial Intelligence	**Course Code: 21AI54**	**Month/Year: March/2024**

Answer all the following questions. (Bubble the circle for a correct answer at the last page)

1	What is the primary goal of Artificial Intelligence (AI)?	
	a) To mimic human behavior	b) To create systems that can perform tasks requiring human intelligence
	c) To develop machines with emotions	d) To replace human intelligence entirely
2	What is an agent in the context of AI?	
	a) A computer program that performs tasks autonomously	b) A human interacting with a computer system
	c) A system that can think and reason like a human	d) An algorithm designed for gaming purposes
3	What does the term "rationality" refer to in the context of intelligent agents?	
	a) Acting optimally to achieve the best outcome based on available information	b) Emulating human thought processes
	c) Following predetermined rules without deviation	d) Acting randomly without any logic or reasoning
4	What is the role of the environment in the context of intelligent agents?	
	a) It provides resources for the agent to utilize	b) It determines the actions available to the agent
	c) It has no impact on the behavior of the agent	d) It serves as a passive observer to the agent's actions
5	How would you define the structure of an agent in AI?	
	a) It consists of sensors, actuators, and a model of the environment	b) It is a complex neural network architecture
	c) It is a set of logical rules programmed into the system	d) It is the sequence of actions the agent can take in any given environment
6	Which type of agent is specifically designed to tackle problems by finding solutions?	
	a) Reactive agent	b) Deliberative agent
	c) Problem-solving agent	d) Reflex agent
7	Which of the following is an example of an uninformed search strategy?	
	a) A* search	b) Greedy best-first search
	c) Depth First Search	d) Hill climbing
8	What is the primary advantage of Breadth First Search over Depth First Search?	
	a) It consumes less memory	b) It is faster
	c) It guarantees to find the shallowest goal	d) It has better time complexity
9	Which search strategy iteratively increases the depth limit until the solution is found?	
	a) Breadth First Search	b) Depth First Search
	c) Iterative deepening depth first search	d) Uniform Cost Search

10	Which search strategy may suffer from the problem of infinite loops if applied in an infinite space?	
	a) Breadth First Search	b) Depth First Search
	c) Iterative deepening depth first search	d) Uniform Cost Search
11	What role do heuristic functions play in informed search strategies like A* search?	
	a) They guarantee finding the optimal solution.	b) They estimate the cost from the current state to the goal state.
	c) They determine the order in which nodes are explored.	d) They ensure the completeness of the search algorithm.
12	Which informed search strategy always expands the node that appears to be closest to the goal, based on a heuristic function?	
	a) Greedy best-first search	b) A* search
	c) Depth First Search	d) Uniform Cost Search
13	What is the main advantage of A* search over Greedy best-first search?	
	a) A* search guarantees to find the optimal solution.	b) A* search is faster.
	c) A* search consumes less memory.	d) A* search always expands the node closest to the goal.
14	In logical agents, what role does propositional logic play?	
	a)It helps agents to perceive the environment.	b) It provides a formal language for expressing knowledge.
	c) It determines the actions taken by the agent.	d) It assists in planning and decision-making.
15	What is the primary use of reasoning patterns in propositional logic within knowledge-based agents?	
	a) To represent uncertainty in the environment.	b) To model the agent's emotions and desires.
	c) To infer new information from existing knowledge.	d) To determine the agent's perception of the environment.
16	What aspect of First Order Logic (FOL) deals with the structure and interpretation of logical statements?	
	a) Representation Revisited	b) Syntax of FOL
	c) Semantics of FOL	d) Using FOL
17	In First Order Logic, what is the process of finding a substitution that makes two predicates identical?	
	a) Unification	b) Forward Chaining
	c) Backward Chaining	d) Resolution
18	Which inference method involves starting with known facts and working forward to see if the desired conclusion can be reached?	
	a) Forward Chaining	b) Backward Chaining
	c) Resolution	d) Propositional Inference
19	What is the primary difference between propositional inference and first-order inference?	
	a) Propositional inference deals with logical statements involving quantifiers.	b) Propositional inference operates on logical statements with predicates and variables.
	c) Propositional inference uses a different syntax than first-order inference.	d) Propositional inference cannot handle logical statements with predicates.

20	Which inference method involves starting with the desired conclusion and working backward to see if it can be inferred from the known facts?	
	a) Forward Chaining	b) Backward Chaining
	c) Unification	d) Resolution
21	What is the main purpose of quantifying uncertainty in uncertain knowledge and reasoning?	
	a) To eliminate uncertainty entirely	b) To understand and manage uncertainty
	c) To create more complex uncertainties	d) To avoid dealing with uncertainty
22	Which of the following is NOT a basic probability notation?	
	a) P(X)	b) P(X | Y)
	c) P(X && Y)	d) P(X, Y)
23	Inference using full joint distributions involves:	
	a) Analyzing only one variable at a time	b) Analyzing multiple variables simultaneously
	c) Ignoring the joint distribution completely	d) Making random guesses
24	Independence in probability theory refers to:	
	a) Events that are unrelated to each other	b) Events that are always mutually exclusive
	c) Events that occur at the same time	d) Events that influence each other's outcomes
25	What is Bayes' Rule primarily used for?	
	a) To determine the probability of an event occurring	b) To update beliefs based on new evidence
	c) To calculate the total number of outcomes	d) To create uncertainty in reasoning

26	In the context of the Wumpus World, what does "revisited" imply?	
	a) A new version of the game with enhanced graphics	b) Returning to the original Wumpus World after a period of time
	c) Revising the rules of the Wumpus World	d) Exploring different scenarios and strategies in the Wumpus World
27	Acting under uncertainty involves making decisions when:	
	a) All outcomes are certain	b) Outcomes are known with absolute certainty
	c) Outcomes are unknown or partially known	d) Outcomes have no impact on decision-making
28	What does the term "full joint distributions" refer to?	
	a) The complete set of outcomes for multiple variables	b) The distribution of only one variable
	c) A distribution that has no relationship between variables	d) A distribution with only two variables
29	Which of the following is a consequence of independence between events?	
	a) The events cannot occur simultaneously	b) The occurrence of one event does not affect the probability of the other event
	c) The events always occur together	d) The events have identical outcomes
30	What is the key advantage of using Bayes' Rule in uncertain reasoning?	

	a) It simplifies complex problems	b) It guarantees accurate results
	c) It provides a systematic way to update beliefs	d) It eliminates the need for probability calculations
31	When is it appropriate to use Bayes' Rule?	
	a) Only when dealing with independent events	b) Only when dealing with dependent events
	c) When updating beliefs with new evidence	d) When there is no uncertainty in the scenario
32	What is the primary purpose of quantifying uncertainty?	
	a) To eliminate uncertainty altogether	b) To understand and manage uncertainty
	c) To increase the complexity of problems	d) To create deterministic models
33	What does "acting under uncertainty" involve?	
	a) Making decisions with complete knowledge of outcomes	b) Making decisions with partial or unknown knowledge of outcomes
	c) Avoiding decision-making altogether	d) Making random decisions
34	What does P(X | Y) represent in probability notation?	
	a) The probability of event X occurring given that event Y has occurred	b) The joint probability of events X and Y occurring simultaneously
	c) The probability of either event X or event Y occurring	d) The conditional probability of event X occurring
35	How does independence between events affect probability calculations?	
	a) It makes probability calculations more complex	b) It simplifies probability calculations
	c) It has no impact on probability calculations	d)It increases uncertainty in probability calculations
36	What is the main purpose of inference using full joint distributions?	
	a) To analyze one variable at a time	b) To analyze multiple variables simultaneously
	c) To avoid analyzing distributions altogether	d) To create uncertainty in reasoning
37	In the context of the Wumpus World, what does Bayes' Rule help with?	
	a) Determining the exact location of the Wumpus	b) Identifying safe paths for the agent
	c) Updating beliefs about the location of hazards	d) Calculating the number of moves required to win
38	What does independence between events imply?	
	a) Events have no relationship with each other	b) Events always occur simultaneously
	c) Events always have the same outcome	d) Events never occur together

39	What is the significance of basic probability notation?	
	a) It simplifies complex problems	b) It allows for precise representation of probabilities
	c) It introduces randomness into probability calculations	d) It eliminates the need for probability calculations
40	How does Bayes' Rule contribute to uncertain reasoning?	
	a) By introducing additional uncertainty	b) By providing a systematic approach to updating beliefs
	c) By eliminating uncertainty altogether	d) By creating deterministic models

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Total Marks Obtained Out of 40:	Total Marks Obtained Out of 20:
Student Signature:	Faculty Name and Signature: