



HALDIA INSTITUTE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION UNDER MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL)

Paper Code: PEC-IT 501B

Paper Name: Artificial Intelligence

Time Allotted: 1 Hour 30 Minutes

Full Marks: 70

The figures in the margin indicate full marks

Candidates are required to give their answers in their own words as far as practicable

Group – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives from the followings:

30 x 1 = 30

(i) Artificial Intelligence is about_____.

[CO1]

- a. Playing a game on Computer
- b. Making a machine Intelligent
- c. Programming on Machine with your Own Intelligence
- d. Putting your intelligence in Machine

(ii) Select the most appropriate situation for that a blind search can be used.

[CO2]

- a. Real-life situation
- b. Small Search Space
- c. Complex game
- d. All of the above

(iii) The application/applications of Artificial Intelligence is/are

[CO1]

- a. Expert Systems
- b. Gaming
- c. Vision Systems
- d. All of the above

(iv) Among the given options, which search algorithm requires less memory?

[CO2]

- a. Optimal Search
- b. Depth First Search
- c. Breadth-First Search
- d. Linear Search

(v) If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as the___ [CO3]

- a. Mobile
- b. Non-Servo
- c. Open Loop
- d. Intelligent

(vi) Which of the given language is not commonly used for AI? [CO1]

- a. LISP
- b. PROLOG
- c. Python
- d. Perl

(vii) A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the___ [CO1]

- a. Boolean Algebra
- b. Turing Test
- c. Logarithm
- d. Algorithm

(viii) The component of an Expert system is_____. [CO1]

- a. Knowledge Base
- b. Inference Engine
- c. User Interface
- d. All of the above

(ix) Which algorithm is used in the Game tree to make decisions of Win/Lose? [CO2]

- a. Heuristic Search Algorithm
- b. DFS/BFS algorithm
- c. Greedy Search Algorithm
- d. Min/Max algorithm

(x) The available ways to solve a problem of state-space-search. [CO2]

- a. 1

- b. 2
- c. 3
- d. 4

(xi) Among the given options, which is not the required property of Knowledge representation? [CO1]

- a. Inferential Efficiency
- b. Inferential Adequacy
- c. Representational Verification
- d. Representational Adequacy

(xii) An AI agent perceives and acts upon the environment using____. [CO1]

- a. Sensors
- b. Perceiver
- c. Actuators
- d. Both a and c

(xiii) Which rule is applied for the Simple reflex agent? [CO2]

- a. Simple-action rule
- b. Simple &Condition-action rule
- c. Condition-action rule
- d. None of the above

(xiv) Which agent deals with the happy and unhappy state? [CO2]

- a. Utility-based agent
- b. Model-based agent
- c. Goal-based Agent
- d. Learning Agent

(xv) Which term describes the common-sense of the judgmental part of problem-solving? [CO2]

- a. Values-based
- b. Critical
- c. Analytical
- d. Heuristic

(xvi) Which AI technique enables the computers to understand the associations and relationships between objects and events? [CO2]

- a. Heuristic Processing
- b. Cognitive Science
- c. Relative Symbolism
- d. Pattern Matching

(xvii) In the Wumpus World Problem, the reason for the uncertainty is that the agent's sensor gives only__ [CO2]

- a. Full & Global information
- b. Partial & Global Information
- c. Full & local information
- d. Partial & local Information

(xviii) The search algorithm which is similar to the minimax search, but removes the branches that don't affect the final output is known as__. [CO2]

- a. Depth-first search
- b. Breadth-first search
- c. Alpha-beta pruning
- d. None of the above

(xix) Among the given options, which is also known as inference rule? [CO2]

- a. Reference
- b. Reform
- c. Resolution
- d. None of the above

(xx) A hybrid Bayesian Network consists of _____. [CO2]

- a. Discrete variables only
- b. Discontinuous Variable
- c. Both Discrete and Continuous variables
- d. Continuous Variable only

(xxi) Automatic Reasoning tool is used in_____. [CO1]

- a. Personal Computers
- b. Microcomputers
- c. LISP Machines
- d. All of the above

(xxii) If according to the hypothesis, the result should be positive, but in fact it is negative, then it is known as_____. [CO2]

- a. False Negative Hypothesis
- b. False Positive Hypothesis
- c. Specialized Hypothesis
- d. Consistent Hypothesis

(xxiii) A hybrid Bayesian Network consist_____. [CO2]

- a. Discrete variables only
- b. Discontinuous Variable
- c. Both Discrete and Continuous variables
- d. Continuous Variable only

(xxiv) The process of capturing the inference process as Single Inference Rule is known as [CO2]

- a. Clauses
- b. Ponens
- c. Generalized Modus Ponens
- d. Variables

(xxv) The best AI agent is one which_____ [CO2]

- a. Needs user inputs for solving any problem
- b. Can solve a problem on its own without any human intervention
- c. Need a similar exemplary problem in its knowledge base
- d. All of the above

(xxvi) Which algorithm takes two sentences as input and returns a Unifier? [CO2]

- a. Inference
- b. Hill-Climbing
- c. Unify algorithm
- d. Depth-first search

(xxvii) Which of the given element improve the performance of AI agent so that it can make better decisions? [CO2]

- a. Changing Element
- b. Performance Element
- c. Learning Element

d. None of the above

(xxviii) In state-space, the set of actions for a given problem is expressed by the____[CO2]

- a. Intermediate States
- b. Successor function that takes current action and returns next state
- c. Initial States
- d. None of the above

(xxix) The decision tree algorithm reaches its destination using_____. [CO2]

- a. Single Test
- b. Two Test
- c. Sequence of test
- d. No test

(xxx) The main tasks of an AI agent are_____. [CO1]

- a. Input and Output
- b. Moment and Humanly Actions
- c. Perceiving, thinking, and acting on the environment
- d. None of the above

Group – B
(Multiple Choice Type Questions)

2. Choose the correct alternatives from the followings:

20 x 2 = 40

(i) In the TSP problem of n cities, the time taken for traversing all cities without having prior knowledge of the length of the minimum tour will be_____. [CO3]

- a. $O(n)$
- b. $O(n^2)$
- c. $O(n!)$
- d. $O(n/2)$

(ii) The probabilistic reasoning depend upon_____. [CO2]

- a. Estimation
- b. Observations
- c. Likelihood
- d. All of the above

(iii) The inference engine works on _____. [CO1]

- a. Forward Chaining
- b. Backward Chaining
- c. Both a and b
- d. None of the above

(iv) Which of the given statement is true for Conditional Probability? [CO2]

- a. Conditional Probability gives 100% accurate results.
- b. Conditional Probability can be applied to a single event.
- c. Conditional Probability has no effect or relevance on independent events.
- d. None of the above.

(v) After applying conditional Probability to a given problem, we get_____ [CO2]

- a. 100% accurate result
- b. Estimated Values
- c. Wrong Values
- d. None of the above

(vi) The best AI agent is one which_____ [CO2]

- a. Needs user inputs for solving any problem
- b. Can solve a problem on its own without any human intervention
- c. Need a similar exemplary problem in its knowledge base
- d. All of the above

(vii) The Bayesian Network gives_____ [CO2]

- a. A complete description of the problem
- b. Partial Description of the domain
- c. A complete description of the domain
- d. None of the above

(viii) In LISP, the addition of 5+8 is entered as_____. [CO3]

- a. 5+8
- b. 5 add 8
- c. 5+8=
- d. (+5 8)

(ix) An Algorithm is said as Complete algorithm if_____

- a. It ends with a solution (if any exists).

- b. It begins with a solution.
- c. It does not end with a solution.
- d. It contains a loop

(x) Which statement is valid for the Heuristic function? [CO2]

- a. The heuristic function is used to solve mathematical problems.
- b. The heuristic function takes parameters of type string and returns an integer value.
- c. The heuristic function does not have any return type.
- d. The heuristic function calculates the cost of an optimal path between the pair of states.

(xi) The exploration problem is where_____ [CO2]

- a. Agent contains the knowledge of State and actions.
- b. Agent does not contain the knowledge of State and actions.
- c. Only actions are known to the agent.
- d. None of the above

(xii) The search algorithm which is similar to the minimax search, but removes the branches that don't affect the final output is known as___. [CO2]

- a. Depth-first search
- b. Breadth-first search
- c. Alpha-beta pruning
- d. None of the above

(xiii) Automatic Reasoning tool is used in_____. [CO1]

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(xvi) The process of capturing the inference process as Single Inference Rule is known as

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- a. Clauses
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(xvii) Which algorithm takes two sentences as input and returns a Unifier?

[CO2]

- a. Inference
- b. Hill-Climbing
- c. Unify algorithm
- d. Depth-first search

(xviii) The PEAS in the task environment is about_____.

[CO2]

- a. Peer, Environment, Actuators, Sense
- b. Performance, Environment, Actuators, Sensors
- c. Perceiving, Environment, Actuators, Sensors
- d. None of the above

(xix) In which search problem, to find the shortest path, each city must be visited once only?

- a. Map coloring Problem

[CO2]

- b. Depth-first search traversal on a given map represented as a graph
- c. Finding the shortest path between a source and a destination
- d. Travelling Salesman problem

(xx) In the TSP problem of n cities, the time taken for traversing all cities, without having prior knowledge of the length of the minimum tour will be_____.

[CO3]

- a. $O(n)$
- b. $O(n^2)$
- c. $O(n!)$
- d. $O(n/2)$

SABYASACHI PRAMANIK

Signature of the Paper Setter/Moderator

Answer Key:

Group – A

1. (i) b	(ii) b	(iii) d	(iv) b	(v) d	(vi) d
(vii) b	(viii) d	(ix) d	(x) b	(xi) c	(xii) d
(xiii) c	(xiv) d	(xv) d	(xvi) d	(xvii) d	(xviii) c
(xix) c	(xx) c	(xxi) c	(xxii) b	(xxiii) c	(xxiv) c
(xxv) b	(xxvi) b	(xxvii) c	(xxviii) b	(xxix) c	(xxx) c

Group – B

2. (i) c	(ii) d	(iii) c	(iv) c	(v) b	(vi) b
(vii) b	(viii) d	(ix) a	(x) d	(xi) b	(xii) c
(xiii) a	(xiv) b	(xv) c	(xvi) d	(xvii) a	(xviii) c
(xix) d	(xx) c				