

Q. 335

ANSWER: Classification

Classification is a Supervised Learning task where output is having defined labels (discrete value). In above figure Output - "Purchased" has defined labels i.e., 0 or 1, 1 means the customer will purchase and 0 means that customer won't purchase. The goal here is to predict discrete values belonging to a particular class and evaluate on the basis of accuracy.

It can be either binary or multi class classification. In binary classification, model predicts either 0 or 1; yes or no but in case of multi class classification, model predicts more than one class.

Q. 336

ANSWER: Regression

Regression is a Supervised Learning task where output is having continuous value.

In above figure, Output - "Wind Speed" is not having any discrete value but is continuous in the particular range. The goal here is to predict a value as much closer to actual output value as our model can and then evaluation is done by calculating error value. The smaller the error the greater the accuracy of our regression model.

MULTIPLE CHOICE QUESTIONS

Intelligence is defined as: _____

- A. The capacity to acquire and apply knowledge.
- B. The faculty of thought and reason.
- C. Superior powers of mind.
- D. All of mentioned above

Artificial Intelligence (AI) is the simulation of human intelligence by machines. AI has ability to _____

- A. Solve Problems
- B. Act Rationally
- C. Act like Humans
- D. All of mentioned above

The central principle of AI includes

- A. Reasoning, knowledge, planning, learning and communication
- B. Perception and the ability to move and manipulate objects.
- C. It is the science and engineering of making intelligent machines, especially intelligent computer programs
- D. All of the mentioned above

_____ is about AI

- A. Making a machine Intelligent
- B. Putting your intelligence in Machine
- C. Programming on Machine with your Own Intelligence
- D. Playing a game on Computer

What is Artificial Intelligence?

- A. Artificial Intelligence is a field that aims to make humans more intelligent
- B. Artificial Intelligence is a field that aims to collect and mine the data
- C. Artificial Intelligence is a field that aims to develop intelligent machines
- D. Artificial Intelligence is a field that aims to improve the privacy and security

6.

_____ is the father of Artificial Intelligence

- A. Alan Turing
- B. John McCarthy
- C. Lady ADA
- D. Charles Babbage

7.

If a machine can change its course of action based on the external environment on its own, the machine is called _____

- A. Ideal
- B. Intelligent
- C. Both A and B
- D. Mobile

8.

_____ is the branch of Artificial Intelligence.

- A. Network Architecture
- B. Full Stack Developer
- C. Machine Learning
- D. None of above

9.

_____ is the goal of an AI

- A. To extract scientific causes
- B. To solve artificial problems
- C. To solve real-world problems
- D. To explain various sorts of intelligence

10.

_____ is an application of AI

- A. It helps to exploit vulnerabilities to secure the firm
- B. Easy to create a website
- C. It helps to deploy applications on the cloud
- D. Language understanding and problem-solving (Text analytics and NLP)

11. In how many categories process of Artificial Intelligence is categorized?
 A. Processes are categorized based on the provided input and gained output.
 B. Categorized into 3 categories
 C. Categorized into 4 categories
 D. Process is not categorized
12. Based on _____ parameter Artificial Intelligence is categorized.
 A. Functionality B. Durability
 C. Capability D. Both A and C
13. _____ is not an application of artificial intelligence
 A. Computer Vision
 B. Natural Language Processing
 C. Containerization
 D. Image Recognition
14. _____ is the challenges of AI
 A. Black box problem
 B. AI Algorithm Bias
 C. High computing power requirement
 D. All of the mentioned above
15. Consider the statement "AI will take over the jobs" is this statement true or its just a myth?
 A. Myth
 B. Fact
 C. May be myth of fact
 D. Neither myth nor fact
16. _____ is the open source Open-source AI software.
 A. Acumos AI
 B. ClearML
 C. H2O.ai
 D. All of mentioned above
17. Which of the given language is not commonly used for AI?
 A. LISP B. PROLOG
 C. Python D. PHP

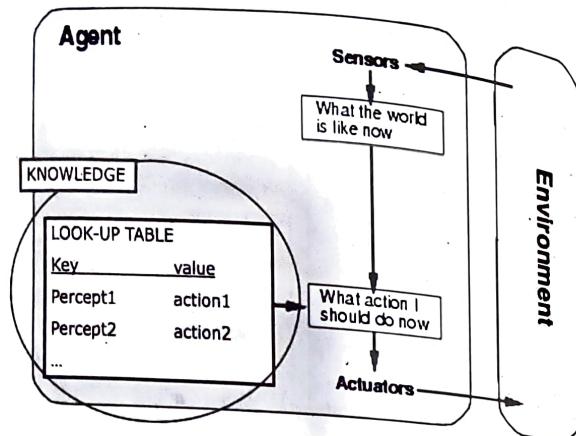
18. An _____ is anything that can be viewed as perceiving its environment through sensors and acting upon that environment through actuators.
 A. Agent B. Re-agent
 C. Perceptor D. Robotic arm
19. _____ maps from percept histories to actions: $f: P^* \rightarrow A$
 A. Perceptor function
 B. Agent function
 C. Sensor function
 D. Actuator function
20. The _____ runs on the physical architecture to produce 'f' in this relation $f: P^* \rightarrow A$
 A. Actuator Program
 B. Environment Program
 C. Rational Program
 D. Agent Program
21. A _____ should select an action that is expected to maximize its performance measure, based on the evidence provided by the percept sequence and whatever built-in knowledge the agent has.
 A. Agent B. Rational Agent
 C. Irrational Agent D. Environment
22. What is an 'agent'?
 A. Perceives its environment through sensors and acting upon that environment through actuators
 B. Takes input from the surroundings and uses its intelligence and performs the desired operations
 C. A embedded program controlling line following robot
 D. All of the mentioned
23. Agents behavior can be best described by _____
 A. Perception sequence
 B. Environment in which agent is performing
 C. Sensors and Actuators
 D. Agent function

- An agent is composed of _____ / Agent's structure can be viewed as _____
- A. Architecture
 B. Agent Function
 C. Perception Sequence
 D. Architecture and Program
- A rational agent is an agent that forever does the right thing.
- A. True
 B. False
 C. Partially true
 D. Completely false
- Performance Measures are not fixed for all agents.
- A. True
 B. False
 C. Partially true
 D. Completely false
- The Task Environment of an agent consists of which of the following?
- A. Sensors
 B. Performance Measures
 C. Actuators
 D. All of these
- _____ following is rational at any given time depends on
 A. The actions that the agent can do
 B. The agent's previous knowledge of the environment
 C. The performance measure that describes the criterion of success
 D. All of these
- _____ is the act of task environment and Rational Agents in AI?
- A. Observation and Solution
 B. Problem and Solution
 C. Problem and Observation
 D. Identification and Observation
- PEAS Stands for _____ in task Environment.
- A. Prediction, Environment, Augmentation, Sensors
 B. Perceiving, Entertainment, Actuators, Sense
 C. Performance, Environment, Actuators, Sensors
 D. Performance, Evolution, Actuators, Sense
- _____ is used to select a particular environment when we want to run the agent
- A. Environment creator
 B. Environment Generator
 C. Both A & B
 D. None of these
- Consider an Agent "Taxi Driver" What might be the Performance Measure for it?
- A. Comfortable trip B. Roads
 C. Steering Wheels D. Cameras
- Consider an Agent "Medical Diagnosis System" What might be the Environments of it?
- A. Healthy Patients B. Patients
 C. Hospital D. Both B and C
- Consider an Agent "Part-picking Robot" What might be the sensors of it?
- A. Bins
 B. Joined Arms and Hands
 C. Camera
 D. None of the above
- _____ types of observing environments are there in AI.
- A. 1 B. 4
 C. 2 D. 3

36. There are _____ basic types/structures of Agents in AI.

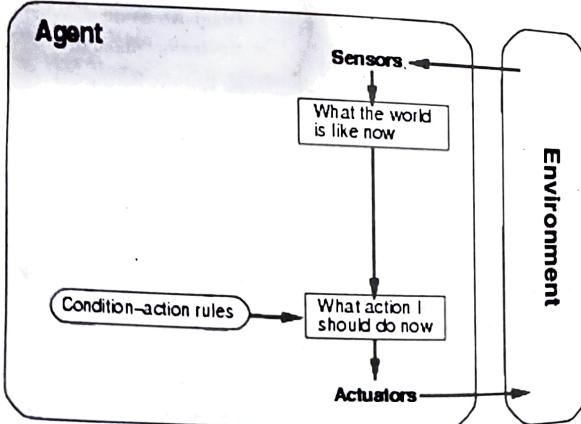
- A. 3
- B. 5
- C. 6
- D. 7

37. Name the type of the agent shown below:



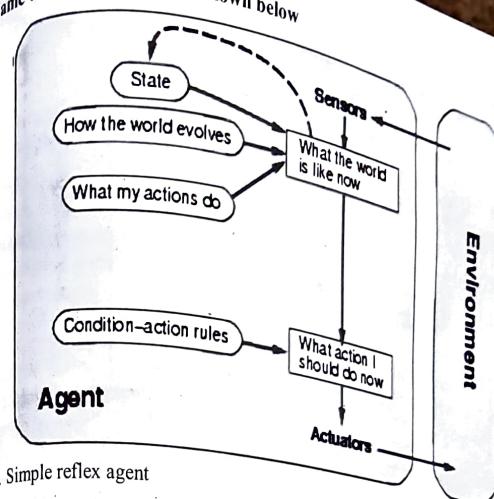
- A. Simple reflex agent
- B. Model-based agent
- C. Goal-based agent
- D. Table driven agent

38. Name the type of the agent shown below:



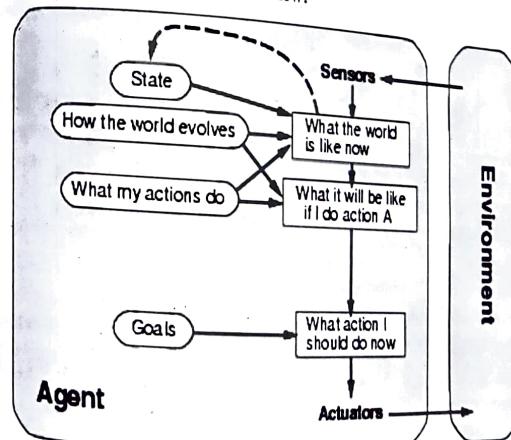
- A. Simple reflex agent
- B. Model-based reflect agent
- C. Goal-based agent
- D. Table driven agent

39. Name the type of the agent shown below



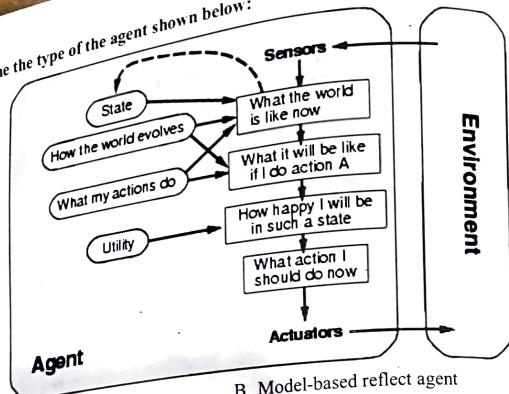
- A. Simple reflex agent
- B. Model-based reflect agent
- C. Goal-based agent
- D. Table driven agent

40. Name the type of the agent shown below:



- A. Simple reflex agent
- B. Model-based reflect agent
- C. Goal-based agent
- D. Learning agents

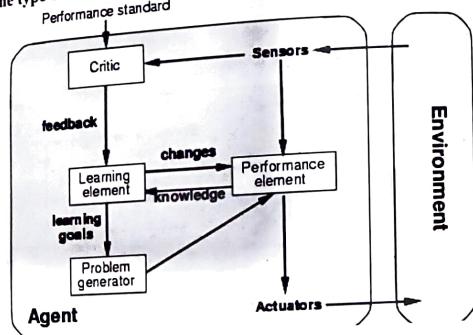
41. Name the type of the agent shown below:



A. Utility-based agent
C. Goal-based agent

- B. Model-based reflect agent
D. Learning agents

42. Name the type of the agent shown below:



- A. Utility-based agent
C. Goal-based agent

- B. Model-based reflect agent
D. Learning agents

43. Which agent deals with happy and unhappy states?

- A. Simple reflex agent
B. Goal based agent
C. Table driven agent
D. Utility based agent

44. In which agent does the problem generator is present?

- A. Observing agent
B. Reflex agent
C. Learning agent
D. Simple agent

what is the rule of simple reflex agent?
A. Simple-action rule
B. Condition-action rule
C. Both Simple & Condition-action rule
D. Utility rules

The action of the Simple reflex agent completely depends upon _____

- A. Perception history
B. Current perception
C. Performance measures
D. Goal functions

kind of agent architecture should an agent can use.

- A. Relaxed B. Relational
C. Both A and B D. None of Above

An agent's sensors give it access to complete state of the environment at each point in time, then we say that the task environment is _____

- A. Partially observable
B. Fully observable
C. Static
D. Deterministic

Consider an example of a Chess game, in which a player gets to see the whole board. Which environment is this?

- A. Partially observable
B. Fully, observable
C. Static
D. Deterministic

Consider an example of poker game, in which a player gets to see only his cards. Which environment is this?

- A. Partially observable
B. Fully observable
C. Static
D. Deterministic

51. If the next state of the environment is completely determined by the current state and the actions of the agent, then the environment is _____

- A. Deterministic
B. Non-Deterministic
C. Random
D. Static

52. Tic-Tac-Toe game is the example of _____ environment.

- A. Random
B. Dynamic
C. Deterministic
D. Non-Deterministic

53. Self-driving vehicles are an example of _____ AI processes.

- A. Non-deterministic Stochastic
B. Deterministic
C. Fully observable
D. Partially observable

54. In Episodic Environment, Experience is divided into _____ of agents perceiving then acting. Action taken in one _____ does not affect next one at all.

- A. Epochs B. Episodes
C. Time frames D. Half

55. E-mail sorting system is an example of _____

- A. Episodic Environment
B. Static Environment
C. Non-Deterministic Environment
D. None of above

56. Chess Game is an example of _____

- A. Episodic Environment
B. Static Environment
C. Non-Episodic Environment
D. None of above

57. The environment is _____ if current decisions affect future decisions, or rely on previous ones.
- Sequential/ Non-Episodic
 - Static
 - Dynamic
 - None of above
58. If the environment does not change while an agent is acting, then it is _____; otherwise, it is _____.
- Static, Dynamic
 - Static, Deterministic
 - Dynamic, Static
 - Dynamic, Deterministic
59. Consider an example, if we add $2+2=4$ this will remain same they will never be change. Which environment is this?
- Static
 - Dynamic
 - Sequential
 - Deterministic
60. Consider an example of playing football game, in every action there will be new reaction. Which environment is this?
- Static
 - Dynamic
 - Sequential
 - Deterministic
61. If there are a limited number of distinct, clearly defined, states of the environment, the environment is _____.
- Discrete
 - Continuous
 - Static
 - Dynamic
62. Consider an example of a game of chess or checkers where there are a set number of moves. Which environment is this?
- Discrete
 - Continuous
 - Static
 - Dynamic
63. Signals constantly coming into sensors, actions continually changing is _____ environment.
- Discrete
 - Continuous
 - Static
 - Deterministic
64. Consider an example, Taxi driving. In which there could be a route from to anywhere to anywhere else. Which environment is this?
- Discrete
 - Continuous
 - Static
 - Deterministic
65. _____ is not Properties of Environment.
- Discrete / Continuous
 - Static / Dynamic
 - Deterministic / Non-deterministic
 - No agent / Multiple agents
66. What kind of environment is crossword puzzle?
- Dynamic
 - Static
 - Semi Dynamic
 - Observable
67. _____ environment is called as semi dynamic.
- Environment does not change with the passage of time
 - Agent performance changes
 - Environment does not change with the passage of time, but Agent performance changes
 - Environment will be changed
68. An agent's sensors give it access to the complete state of the environment at each point in time is _____.
- Fully observable environment
 - Partially observable environment
 - Stochastic Environment
 - Dynamic Environment
69. Environment can change while agent is thinking is _____.
- Static Environment
 - Dynamic Environment
 - Deterministic Environment
 - Sequential Environment
70. Environment does not change with time but, but performance score does _____.
- Dynamic Environment
 - Semi-Dynamic Environment
 - Deterministic Environment
 - Sequential Environment
71. An agent operating by itself in an environment is _____.
- Single Agent
 - Multi-Agent
 - Intelligent Agent
 - Rational Agent
72. What kind of agent is a Web Crawler?
- Table-driven agent
 - Utility-based agent
 - Learning agent
 - Intelligent goal-based agent
73. _____ is the main task of a problem-solving agent.
- Solve the given problem and reach to goal
 - To find out which sequence of action will get it to the goal state
 - All of the mentioned
 - None of the mentioned
74. _____ is a process of generating solution from an observed data.
- Problem generating
 - Problem Solving
 - Problem Identifying
 - None of above
75. Problem solving is characterized by _____.
- A set of goals
 - Set of objects
 - Set of operations
 - All of the mentioned above
76. Problem space is an _____ space.
- Virtual
 - Abstract
 - Search
 - None of above
77. The solution to the problem space is _____.
- Combination of operations and objects that achieve the goals
 - Combination of Abstract space and objects that achieve the goals
 - Combination of Problem and solution that achieve the goals
 - Combination of Operation and Abstract space that achieve the goals
78. Search refers to the search for a _____ in a problem space.
- Problem
 - Solution
 - Idea
 - Knowledge
79. To build a system to solve a particular problem, we need to _____.
- Define the problem
 - Analyze the problem
 - Isolate and represent task knowledge necessary to solve the problem
 - Choose the best problem-solving technique and apply to the particular problem
 - All of above mentioned
80. A _____ is defined by its elements and their relations.
- Solution
 - Problem
 - Reason
 - Idea
81. _____ is a representation of element at given moment.
- State
 - Space
 - Search
 - Problem
82. _____ is needed for state change.
- Successor function
 - Compressor function
 - Generalization function
 - Abstract function

83. A _____ is a set of all states, reachable from initial state.
 A. Search space B. State space
 C. Problem space D. None
84. The structure of state space is _____ and _____.
 A. Root node and leaf nodes
 B. Tree and Graph
 C. Tree and Forest
 D. Forest and Graph
85. _____ explores the state space.
 A. State process
 B. Search process
 C. Problem process
 D. Successor function
86. In _____ the search explores, all possible path between the initial state and the goal state.
 A. Best case B. Worst case
 C. Average case D. All case
87. In the state space, a _____ is a path from the initial state to the goal state or sometime just the goal state.
 A. Problem B. Solution
 C. Search D. Process
88. A problem consists of description of _____.
 A. Current state B. Action
 C. Desired state D. All of them
89. What is Initial state + Goal state in Search Terminology?
 A. Problem Space
 B. Problem Instance
 C. Search Space Graph
 D. Admissibility
90. Which of the following is the process of eliminating the detail from a given state representation?
 A. Extraction B. Exploration
 C. Association D. Abstraction

91. A _____ is Deterministic, fully observable, known, discrete in nature.
 A. Search space problem
 B. State space problem
 C. Conformant Problem
 D. Contingency Problem
92. A _____ is non-observable in nature.
 A. Search space problem
 B. State space problem
 C. Conformant Problem
 D. Contingency Problem
93. A _____ is non-deterministic and/or partially observable in nature.
 A. Search space problem
 B. State space problem
 C. Conformant Problem
 D. Contingency Problem
94. A _____ is unknown state space.
 A. Exploration problem
 B. State space problem
 C. Conformant Problem
 D. Contingency Problem
95. _____ are the components of well-defined problems.
 A. Initial state and available actions given by the successor functions.
 B. Goal test
 C. Path cost
 D. All of above
96. Search algorithm are commonly evaluated in terms of:
 A. Completeness, Time Complexity, Space Complexity, Optimality
 B. Preparedness, Time Complexity, Space Complexity, Admissibility
 C. Completeness, Constant Complexity, Logarithmic Complexity, Optimality
 D. Preparedness, Time Complexity, Quadratic Complexity, Admissibility
- and _____ complexity is measured in terms of:
 a= max branching factor of the search tree
 b= depth of the least-cost solution
 c= maximum depth of the search tree
 A. Time, Space Complexity
 B. Constant, Logarithmic Complexity
 C. Time, Quadratic Complexity
 D. Space, Logarithmic Complexity
97. A _____ is a searching technique that has no additional information about the distance from the current state to the goal.
 A. Informed Search
 B. Uninformed Search
 C. Random Search
 D. Binary Search
98. A _____ is a searching technique that has additional information about the estimate distance from the current state to the goal.
 A. Informed Search
 B. Uninformed Search
 C. Random Search
 D. Binary Search
99. _____ search uses knowledge to find out the steps to the solutions
 A. Informed Search
 B. Uninformed Search
 C. Random Search
 D. Binary Search
100. _____ search do not use knowledge to find out the steps to the solutions
 A. Informed Search
 B. Uninformed Search
 C. Random Search
 D. Binary Search
102. Uninformed search strategies are also known as _____
 A. Blind Search
 B. Heuristic Search
 C. Random Search
 D. Binary Search
103. Informed search strategies are also known as _____
 A. Blind Search
 B. Heuristic Search
 C. Random Search
 D. Binary Search
104. _____ data structure conveniently used to implement BFS.
 A. Stacks
 B. Queues
 C. Priority Queues
 D. Linked List
105. _____ is the time and _____ is the space complexity of BFS. Consider $b=$ branching factor and $d=$ depth of the search tree.
 A. $O(b^{d+1})$, $O(b^d)$ B. $O(b^{d+1})$, $O(b)$
 C. $O(bd^{d+1})$, $O(b^{d+1})$ D. $O(b)$, $O(b^{d+1})$
106. Breadth-first search always expands the _____ node in the current fringe of the search tree.
 A. Shallowest B. Child node
 C. Root node D. Maximum cost
107. Is BFS complete if the branching factor ' b ' is finite?
 A. Yes B. No
 C. Partially Yes D. None of above
108. Is BFS Optimal?
 A. Yes B. No
 C. Partially Yes D. None of above
109. In BFS, _____ is bigger problem more than _____.
 A. Space, Time
 B. Time, Space
 C. Quadratic, Constant
 D. Exponential, Space

110. LIFO is _____ where as FIFO is _____

- A. Stack, Queue
- B. Queue, Stack
- C. Linear Queue, Stack
- D. Stack, Circular Queue

111. _____ data structure conveniently used to implement DFS.

- A. Stacks
- B. Queues
- C. Linear Queues
- D. Circular Queues

112. _____ is the time and _____ is the space complexity of DFS. Consider $b =$ branching factor and $d =$ depth of the search tree.

- A. $O(b^m)$, $O(bm)$
- B. $O(b^{m-1})$, $O(bm)$
- C. $O(b^m)$, $O(bm^2)$
- D. $O(b^m)$, $O(b^m)$

113. DFS is _____ efficient and BFS is _____ efficient.

- A. Space, Time
- B. Time, Time
- C. Time, Space
- D. Space, Space

114. Is DFS Complete if it fails in infinite depth space?

- A. Yes
- B. No
- C. Partially Yes
- D. None of above

115. DFS may find a non-optimal goal first, then is it still optimal?

- A. Yes
- B. No
- C. Partially Yes
- D. None of above

116. _____ is the time and _____ is the space complexity of Uniform cost search. Consider $b =$ branching factor and $d =$ depth of the search tree.

- A. $O(b^{d-1})$, $O(b^d)$
- B. $O(b^d)$, $O(b^d)$
- C. $O(b^{d-1})$, $O(b^{d-1})$
- D. $O(b^d)$, $O(b^{d-1})$

117. In uniform cost search, we always need to expand the node on the fringe with _____ goal node $g(n)$.

- A. Minimum Cost
- B. Maximum Cost
- C. Average Cost
- D. None of above

118. Is uniform cost search optimal if it is complete?

- A. Yes
- B. No
- C. Partially Yes
- D. None of above

119. In uniform cost search, if cost is equal or almost equal then will behave similar to _____

- A. DFS
- B. BFS
- C. A* Search
- D. Heuristic Search

120. Is Uniform cost search (UCS) complete, if step cost $\geq \varepsilon$ (Some positive constant)

- A. Yes
- B. No
- C. Partially Yes
- D. None of above

121. In _____ search, we enqueue nodes in LIFO but limit depth to L , where $L =$ Depth limit

- A. Depth first search
- B. Depth limit search
- C. Breadth first search
- D. Breadth limit search

122. The embarrassing failure of _____ in infinite state spaces can be alleviated by supplying depth-first search with a predetermined depth limit l . i.e., nodes at depth l have no successors.

- A. Depth first search
- B. Depth limit search
- C. Breadth first search
- D. Breadth limit search

123. Is depth limited search complete if there is no goal state at a depth less than L , where $L =$ depth limit.

- A. Yes
- B. No
- C. Partially Yes
- D. None of above

124. _____ is the time and _____ is the space complexity of Depth limited search. Where $L =$ Cutoff and $b =$ Branching factor

- A. $O(b^L)$, $O(bL)$
- B. $O(b^{L+1})$, $O(bL)$
- C. $O(b^L)$, $O(b^L)$
- D. $O(b^L)$, $O(b^{L+1})$

125. Iterative deepening search (or iterative deepening depth-first search) is a general strategy, often used in combination with depth-first tree search that finds the best _____.

- A. Breadth limit
- B. Height limit
- C. Depth limit
- D. Diagonal limit

126. _____ is the time and _____ is the space complexity of Iterative deepening search. Consider $b =$ branching factor and $d =$ depth of the search tree.

- A. $O(b^d)$, $O(bd)$
- B. $O(b^{d+1})$, $O(bd)$
- C. $O(b^d)$, $O(b^d)$
- D. $O(b^d)$, $O(b)$

127. Is Iterative deepening search optimal if step cost = 1?

- A. Yes
- B. No
- C. Partially Yes
- D. None of above

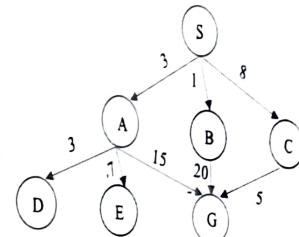
128. In _____ alternate searching from the start state toward the goal and from the goal state toward the start.

- A. Linear Search
- B. Bi-directional Search
- C. A* Search
- D. DFS

129. _____ is the time and _____ is the space complexity of Bi-directional searching.

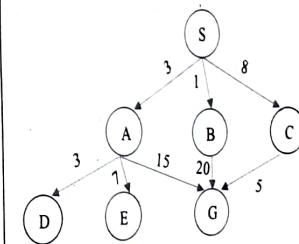
- A. $O(bd/2)$, $O(bd/2)$
- B. $O(bd^2)$, $O(bd^2)$
- C. $O(bd)$, $O(bd)$
- D. $O(b^{d/2})$, $O(b^{d/2})$

130. Consider following tree and expand using the Depth first search.



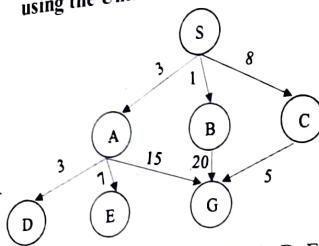
- A. 4 expanded nodes are: S, B, G, E, D
- B. 4 expanded nodes are: S, A, B, C, D
- C. 4 expanded nodes are: S, A, B, D, G
- D. 4 expanded nodes are: S, A, D, E, G

131. Consider following tree and expand using the Breadth first search.



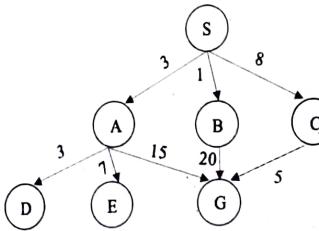
- A. 7 expanded nodes are: S, A, B, C, D, E, G
- B. 7 expanded nodes are: S, C, B, A, D, E, G
- C. 7 expanded nodes are: S, A, D, E, A, S, C
- D. 7 expanded nodes are: S, C, G, E, D, A, S

132. Consider following tree and expand using the Uniform cost search.



- A. 7 expanded nodes are: S, A, D, E, B, C, G
- B. 7 expanded nodes are: S, C, B, E, D, C, G
- C. 7 expanded nodes are: S, A, D, B, C, E, G
- D. 7 expanded nodes are: S, B, C, A, D, E, G

133. Consider following tree and expand using the Iterative deepening search.



- A. 10 expanded nodes are: S, A, D, E, G, C, E, B, C, G
- B. 10 expanded nodes are: S, S, B, E, D, C, A, B, C, G
- C. 10 expanded nodes are: S, S, D, G, A, S, B, C, E, G
- D. 10 expanded nodes are: S, S, A, B, C, S, A, D, E, G

134. _____ is similar to Hill climbing searching but with revising or backtracking.

- A. Depth first search
- B. Breadth first search
- C. Best first search
- D. Binary Search

135. The best first search uses the concept of a _____ and heuristic search.
 A. Circular queue B. Linear queue
 C. Priority queue D. Stack

136. _____ is the time and the space complexity of Best first search. Where b= branching factor and d= depth.
 A. $O(b^d)$, $O(b^d)$
 B. $O(b^{d+1})$, $O(b^d)$
 C. $O(b^d)$, $O(b^{d+1})$
 D. $O(b^d)$, $O(b^d)$

137. Greedy best first search evaluates nodes by using only _____.
 A. Linear function
 B. Non- linear function
 C. Friend function
 D. Heuristic function

138. Why greedy best first search is not complete?
 A. Because it can override the heuristic function
 B. Because it can traverse to outer loop
 C. Because it can get stuck in loop
 D. None of the above

139. _____ is the time and _____ is the space complexity of Greedy Best first search.

A. $O(bm)$, $O(b^m)$ B. $O(b^m)$, $O(bm)$
 C. $O(b^{m+1})$, $O(b^{m+1})$ D. $O(b^m)$, $O(b^m)$

140. The main idea of A* searching is to a _____

- A. Do not expand expensive path
- B. Expand expensive path
- C. All path cost are same in A* searching
- D. None of above

141. Evaluation function is _____ for A* searching, where,
 g(n) - cost so far to reach n
 h(n) - estimated cost to goal from n
 f(n) - estimated total cost of path through n to goal.

$$\begin{aligned} A. f(n) &= g(n) / h(n) \\ B. f(n) &= g(n) - h(n) \\ C. f(n) &= g(n) + h(n) \\ D. f(n) &= g(n) \times h(n) \end{aligned}$$

142. A* search uses an _____ heuristic, that is, $h(n) < h^*(n)$ where $h^*(n)$ is the true cost from 'n'.

- A. Non- admissible B. Admissible
- C. Anchoring D. Constant

143. When should A* searching terminate?
 A. After we enqueue a goal
 B. After we dequeue a goal
 C. No enqueue and dequeue
 D. None of above

144. A* search theorem states that:

- A. If $h(n)$ is not admissible, A* using TREE-SEARCH is optimal.
- B. If $h(n)$ is admissible, A* using TREE-SEARCH is optimal.
- C. If $h(n)$ is admissible, A* using TREE-SEARCH is not optimal.
- D. If $h(n)$ is not admissible, A* using TREE-SEARCH is also not optimal.

145. _____ is the time and _____ is the space complexity of A* Search. Where b= branching factor and d= depth

A. $O(b^{d+1})$, $O(b^d)$ B. $O(b^d)$, $O(b^d)$
 C. $O(b^{d+1})$, $O(b^{d+1})$ D. $O(b^d)$, $O(b^{d-1})$

146. A* is an admissible algorithm that _____ optimal solution.

- A. Does not guarantee
- B. Guarantee
- C. Partially guarantee
- D. None of above

147. The main application of A* Search Algorithm is: Path Routing problem can be solved by using A* Searching

- A. True B. False
- C. Partially True D. None of above

148. A* using Tree search is optimal if heuristic is _____
 A. Constant B. Admissible

C. Anchoring D. Representative

149. A* using Graph search is optimal if heuristic is _____
 A. Constant B. Admissible

C. Representative D. Anchoring

150. _____ is sometimes called greedy local search because it grabs a good neighbor state without thinking ahead about where to go next.
 A. Mini Max
 B. Alpha beta pruning
 C. Hill Climbing
 D. BFS

151. Main features of hill climbing algorithm is _____

- A. Generate and test variant
- B. No back tracking
- C. Greedy approach
- D. All of the above

152. _____ is the problem in Hill climbing searching.
 A. Local Maximum

- B. Plateau
- C. Ridges
- D. All of mentioned above

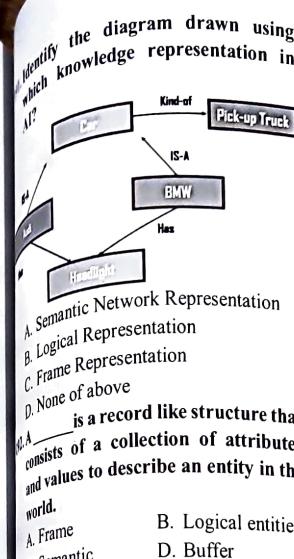
153. In _____ we escape local maxima by allowing some "bad" moves but gradually decrease their frequency.
 A. Hill Climbing

- B. Simulated Annealing
- C. Mini max
- D. Alpha beta pruning

154. Simulated Annealing is _____ optimization technique.
- Local
 - Global
 - Both Local and Global
 - None of above
155. Simulated Annealing is a _____ algorithm, the algorithm does not use any information gathered during the search.
- Memory equipped
 - Memory less
 - Processor equipped
 - None of above
156. The process of annealing can be simulated with the metropolis algorithm which is based on _____ techniques.
- Closed form solution
 - Monte-Carlo simulation
 - Numerical Transformation Method
 - Proposed Method
157. Adversarial Search uses _____ environment
- Collective
 - Competitive
 - Cooperative
 - Both Collective and Cooperative
158. General game involves _____ agents
- Multi
 - Single
 - Only single and multi
 - Neither single nor multi
159. _____ search methods only consider how close the agent is to the goal state.
- Multi-agent
 - Single-agent
 - Both single and multi-agent
 - None of above

160. In _____ games, decisions of both agents have to be taken into account; a decision made by one agent will affect the resulting search space that the other agent would need to explore.
- Single player
 - Two-player
 - No Player
 - Both Single and Two player
161. To formalize a two-player game as a search problem an agent can be called _____ and the opponent can be called _____
- MINI, MAX
 - MAX, MIN
 - MIN, MIN
 - MAX, MAX
162. MINI MAX Algorithm is perfect for deterministic and is a _____ game.
- Single player (Computer)
 - Two-player (Computer and User)
 - Single player (User)
 - None of above
163. Free cell, 8-puzzle, Rubrik's cube is an example of _____
- Deterministic Multi player
 - Deterministic Single player
 - Non-Deterministic single player
 - Non-deterministic multi player
164. Tic-tac-toe, Chess, Cheeker is an example of _____
- Deterministic Multi player
 - Deterministic Single player
 - Non-Deterministic single player
 - Non-deterministic multi player
165. In _____ game, one player maximize result, another player minimize result.
- Zero-player
 - One-player
 - Two-player
 - Thee-player
166. _____ is the time and _____ is the space complexity of MINI MAX Algorithm.
- $O(b^m)$, $O(bm)$
 - $O(b^{m+1})$, $O(bm)$
 - $O(b^m)$, $O(b^m)$
 - $O(bm)$, $O(b^m)$
167. The minimax algorithm performs a complete _____ exploration of the game tree.
- Breadth-first
 - Depth-first
 - Best-first
 - None of above
168. Is MINI MAX Search complete if tree is finite?
- May be
 - No
 - Yes
 - Rather not say
169. For making decision of win/lose, we apply _____ algorithm on game tree.
- Greedy search Algorithm
 - Hill Climbing Algorithm
 - Mini Max Algorithm
 - BFS / DFS Algorithm
170. In Alpha-Beta Pruning Algorithm, Pruning _____ the final result.
- Might affect
 - Does not affect
 - Affect
 - Sometime affects, sometime doesn't affect
171. Why it is called Alpha-Beta? α is the value of the best _____ choice found so far at any choice point along the path for max.
- Lowest value
 - Average value
 - Highest value
 - Infinite value
172. _____ is a modified version of the Mini Max Algorithm.
- Hill climbing
 - Alpha beta pruning
 - BFS
 - DFS
173. To _____ depth does the alpha-beta pruning can be applied.
- 12 states
 - 5 States
 - 1 States
 - Any depth
174. In alpha-beta pruning, the initial value of alpha is _____ and beta is _____
- Negative Infinity, Positive Infinity
 - 1, +1
 - Positive Infinity, Negative Infinity
 - 1, -1
175. The main condition which required for alpha-beta pruning is?
- $\alpha = \beta$
 - $\alpha < \beta$
 - $\alpha > \beta$
 - $\alpha \neq \beta$
176. The 2 types of move ordering in Alpha-Beta Pruning are _____
- Best ordering, Ideal Ordering
 - Worst ordering, Ideal Ordering
 - Best ordering, Random Ordering
 - Worst ordering, Random Ordering
177. In Alpha-Beta pruning, With "perfect ordering," time complexity =
- $O(b^{n+2})$
 - $O(b^{m+1})$
 - $O(b^m)$
 - $O(bm)$
178. Identify the type of knowledge in Artificial Intelligence.
- Procedural and Declarative Knowledge
 - Meta Knowledge
 - Structural and Heuristic Knowledge
 - All of above
179. _____ Knowledge is also known as Imperative Knowledge.
- Procedural
 - Meta
 - Structural
 - Heuristic

180. _____ is non procedural, independent of targets and problem solving.
- Procedural Knowledge
 - Declarative Knowledge
 - Meta Knowledge
 - Structural Knowledge
181. _____ is a knowledge about knowledge and how to gain them.
- Procedural Knowledge
 - Declarative Knowledge
 - Meta Knowledge
 - Structural Knowledge
182. _____ represents a knowledge of some experts in a field or subject.
- Procedural Knowledge
 - Declarative Knowledge
 - Heuristic Knowledge
 - Structural Knowledge
183. _____ talks about what relationship exists between concept/ objects.
- Procedural Knowledge
 - Declarative Knowledge
 - Heuristic Knowledge
 - Structural Knowledge
184. Knowledge Representation and Reasoning represents information from the real world for a computer to understand and then utilize this knowledge to solve _____
- Simplest real-life problems
 - Complex real-life problems
 - Neither simplest nor complex problems
 - None of above
185. Different kinds of knowledge that need to be represented in AI are _____
- Object, Events, Performance, Facts
 - Knowledge base
 - Meta knowledge
 - All of above
186. _____ is the technique of knowledge representation in AI
- Logical Representation
 - Semantic Network and Frame Representation
 - Production Rules
 - All of above
187. _____ is a language with some definite rules which deal with propositions & has no ambiguity in representation.
- Semantic Network representation
 - Logical Representation
 - Frame Representation
 - Production Rules
188. In order to give information to agent and get info without errors in communication, we use _____ technique of knowledge representation.
- Semantic Network representation
 - Logical Representation
 - Frame Representation
 - Production Rules
189. _____ work as an alternative of predicate logic for knowledge representation.
- Semantic Network Representation
 - Logical Representation
 - Frame Representation
 - Production Rules
190. _____ knowledge representation consists of < condition, action > pairs
- Semantic Network Representation
 - Logical Representation
 - Frame Representation
 - Production Rules
196. In Logic _____ specifies the symbols in the language about how they can be combined to form sentences.
- Symbol
 - Semantics
 - Syntax
 - Inference procedure
197. In logic _____ specifies how to assign a truth value to a sentence based on its meaning in the world.
- Symbol
 - Semantics
 - Syntax
 - Inference procedure
198. In logic _____ specifies methods for computing new sentences from the existing sentences.
- Symbol
 - Semantics
 - Syntax
 - Inference procedure
199. _____ is the study of statements and their connectivity.
- Temporal logic
 - Propositional logic
 - Modal logic
 - Predicate logic
200. _____ is the study of individuals and their properties.
- Temporal logic
 - Propositional logic
 - Modal logic
 - Predicate logic
201. _____ may be either true or false but no other value.
- Quantification
 - Proposition
 - Proof
 - Implication



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 - Predicate logic

201. _____ may be either true or false but no other value.
- Quantification
 - Proposition
 - Proof
 - Implication

202. _____ is the type of the proposition.

- A. Simple
- B. Compound
- C. Both A and B
- D. None of above

203. _____ are formed from atomic formulas using the logical connectives not, or, if...then, and, if and only if etc.

- A. Simple Proposition
- B. Compound Proposition
- C. Existential Proposition
- D. Non-existential Proposition

204. Identify the examples of proposition and state which proposition is this.

Eg1: It is raining.

Eg2: Snow is white.

- A. Simple Proposition
- B. Compound Proposition
- C. Existential Proposition
- D. Non-existential Proposition

205. Identify the examples of propositions and state which proposition is this.

Eg1. If you study hard you will be rewarded.

Eg2. The sum of 10 and 20 is not 50.

- A. Simple Proposition
- B. Compound Proposition
- C. Existential Proposition
- D. Non-existential Proposition

206. Which is used to construct the complex sentences?

- A. Connectives
- B. Symbols
- C. Logical connectives
- D. Semantics

207. _____ is the logical operator.

- A. Negation
- B. Conjunction
- C. Both A and B
- D. None of above

208. Consider, the proposition P, Identify which logical connectives is this? $\neg P$ (read "not P")
A. Conjunction B. Disjunction
C. Negation D. Exclusive OR

209. Consider, P and Q be the propositions, Identify which logical connectives is this? $P \wedge Q$ (read "P and Q")
A. Conjunction B. Disjunction
C. Negation D. Exclusive OR

210. Consider, P and Q be the propositions, Identify which logical connectives is this? $P \vee Q$ (read "P or Q")
A. Conjunction B. Disjunction
C. Negation D. Exclusive OR

211. Consider, P and Q be the propositions, Identify which statement is true for this relation. $P \rightarrow Q$ (read "P implies Q")

- A. Implication of P from Q
- B. Implication of Q from P
- C. Biconditional from P to Q
- D. Biconditional from Q to P

212. Consider, P and Q be the propositions,

Identify which logical operator is this? $P \oplus Q$

- A. Conjunction B. Disjunction
- C. Negation D. Exclusive OR

213. Suppose, P and Q be the propositions. In _____ statement $P \rightarrow Q$, P is called hypothesis (premise or antecedent) and Q is called conclusion or consequence.

- A. Simple Statement
- B. Conditional Statement
- C. Both A and B
- D. None of above

214. The conditional statement of $P \rightarrow Q$ is
A. "if P, then Q"
B. "if P, Q"
C. "P is sufficient for Q"
D. All of above

215. To form the _____ of the conditional statement, interchange the hypothesis and the conclusion. The _____ of "If it rains, then they cancel hiking" is "If they cancel hiking, then it rains."

- A. Converse, Inverse
- B. Converse, Converse
- C. Inverse, Converse
- D. Converse, Contrapositive

216. To form the _____ of the conditional statement, take the negation of both the hypothesis and the conclusion. The _____ of "If it rains, then they cancel hiking" is "If it does not rain, then they do not cancel hiking."

- A. Inverse, Converse
- B. Converse, Inverse
- C. Inverse, Inverse
- D. Converse, Converse

217. To form the _____ of the conditional statement, interchange the hypothesis and the conclusion of the inverse statement. The _____ of "If it rains, then they cancel hiking" is "If they do not cancel hiking, then it does not rain."

- A. Contrapositive, Contrapositive
- B. Converse, Inverse
- C. Inverse, Inverse
- D. Converse, Converse

218. Let P and Q be Propositions, In _____ statement $P \leftarrow Q$, the proposition is "if P and only if Q"

- A. Atomic Statement
- B. Conditional Statement
- C. Bi-conditional Statement
- D. None of above

219. The conditional statement of $P \leftrightarrow Q$ is
A. "P is necessary and sufficient for Q"
B. "if p then q, and conversely"
C. "p iff q"
D. "p if and only if q"
E. All of above

220. A proposition that is always true is called a _____

- A. Contradiction
- B. Contingency
- C. Tautology
- D. Hypothesis

221. A proposition that is always false is called a _____

- A. Contradiction
- B. Contingency
- C. Tautology
- D. Hypothesis

222. A proposition is called a _____, if that proposition is neither a tautology nor a contradiction.

- A. Contradiction
- B. Contingency
- C. Tautology
- D. Hypothesis

223. Every complete "sentence" contains two parts: a _____ and a _____

- A. Object, contingency
- B. Object, predicate
- C. Object, Hypothesis
- D. Object, Tautology

224. Consider an example and identify the predicate.

"The car Ram is driving is red";
"The sky is red";

"The cover of this book is red";
A. The predicate is "is red"
B. The predicate is "is driving"
C. The predicate is "the sky"
D. The predicate is "this book"

225. A _____ is a property that a variable or a finite collection of variables can have.

- A. Tautology
- B. Predicate
- C. Proposition
- D. Implication

226. $P \wedge Q$, $P \rightarrow Q$, $\neg Q$ etc. These are the examples of _____

- A. Proof
- B. Validity
- C. Well-formed-formula
- D. Inference

227. A language element which generates a quantification (such as "every") is called a _____

- A. Proof
- B. Quantifier
- C. Inference
- D. Tautology

228. Two types of quantifiers, which are called the _____ and the _____ quantifiers, can quantify the open statements $p(x)$ and $q(x,y)$.

- A. Existential
- B. Universal
- C. Conditional
- D. Both A and B

229. The _____ quantifier (means "for some x ", "for at least one x ", or "there exists an x such that"): "for some x , $p(x)$ " is denoted as " $\exists x, p(x)$ ".

- A. Universal
- B. Existential
- C. Conditional
- D. None of above

230. The _____ quantifier (means "for all x ", "for any x ", "for each x ", or "for every x ") : "for all x , all y " is denoted by " $\forall x \forall y$ ".

- A. Universal
- B. Existential
- C. Conditional
- D. None of above

231. The _____ of propositional logic provide the means to perform logical proofs or deductions.

- A. Inference rules
- B. Commutativity rules
- C. Associativity rules
- D. Idempotency rules

232. _____ are the types of inference rules.

- A. Modus ponens
- B. Modus tollens
- C. Both A and B
- D. None of above

233. If P and $P \rightarrow Q$ are both true, we can infer that Q will be true as well in _____

- A. Modus ponens
- B. Modus tollens
- C. Hypothetical syllogism
- D. Disjunctive syllogism

234. If $P \rightarrow Q$ is true and $\neg Q$ is true, then $\neg P$ will also true in _____

- A. Modus ponens
- B. Modus tollens
- C. Hypothetical syllogism
- D. Disjunctive syllogism

235. If $P \rightarrow R$ is true whenever $P \rightarrow Q$ is true, and $Q \rightarrow R$ is true in _____

- A. Modus ponens
- B. Modus tollens
- C. Hypothetical syllogism
- D. Disjunctive syllogism

236. If $P \vee Q$ is true, and $\neg P$ is true, then Q will be true in _____

- A. Modus ponens
- B. Modus tollens
- C. Hypothetical syllogism
- D. Disjunctive syllogism

237. If P is true, then $P \vee Q$ will be true in _____

- A. Modus ponens
- B. Modus tollens
- C. Addition
- D. Disjunctive syllogism

238. If $P \wedge Q$ is true, then Q or P will also be true in _____

- A. Modus ponens
- B. Addition
- C. Simplification
- D. Resolution

239. If $P \vee Q$ and $\neg P \wedge R$ is true, then $Q \vee R$ will also be true in _____

- A. Modus ponens
- B. Addition
- C. Simplification
- D. Resolution

is a process of making two different logical atomic expressions identical by finding a substitution.

- A. Quantification
- B. Unification
- C. Resolution
- D. Simplification

240. Which is also called single inference rule?

- A. Modus Ponens
- B. Resolution
- C. Modus Tollens
- D. Conjunction

241. FOPL was developed to extend the expressiveness of _____

- A. Predicate logic
- B. Propositional logic
- C. Tautology
- D. Quantifiers

242. Consider the following logic and state if this is valid or not.

Example:

If All men are mortal = P

Socrates is a Man = Q

Socrates is mortal = R

Then $(P \wedge Q) \rightarrow R$

- A. Valid
- B. Invalid
- C. Partially valid
- D. Rather not say

243. First Order Predicate Logic (FOPL) is also known as _____

- A. First Order Predicate Calculus
- B. Quantification Theory
- C. Lower Order Calculus
- D. All of the mentioned above

244. In FOPL, constants, variables and functions are known as _____

- A. Lists
- B. Terms
- C. Atoms
- D. Literals

245. In FOPL, predicates are referred to as atomic formulas or _____

- A. Lists
- B. Terms
- C. Atoms
- D. Literals

246. In FOPL, when we want to refer to an atom, or its negation we often use the word _____

- A. Lists
- B. Terms
- C. Atoms
- D. Literals

247. Translate English to FOPL: Khusboo likes Pizza.

- A. Likes (Khusboo, Pizza)
- B. Likes (Pizza, Khusboo)
- C. Khusboo (Pizza, likes)
- D. Pizza (khusboo, likes)

248. Translate English to FOPL: Khusboo owns iPhone_14pro.

- A. Owns (Khusboo, iPhone_14pro)
- B. Owns (iPhone_14pro, Khusboo)
- C. Khusboo (iPhone_14pro, owns)
- D. iPhone_14pro (khusboo, owns)

249. Translate English to FOPL: Charlie is Dog.

- A. Charlie (Dog)
- B. Dog (Charlie)
- C. Charlie → Dog
- D. Charlie ← Dog

250. Translate English to FOPL: All kings are person.

- A. " x : Kings(x) → Person(x)
- B. " x : Kings(x) V Person(x)
- C. " x : Kings(x) ↔ Person(x)
- D. " x : Kings(x) ^ Person(x)

251. Translate English to FOPL: Nobody loves Harry_Maguire

- A. \neg Loves (x , Harry_Maguire)
- B. !Loves (x , Harry_Maguire)
- C. Loves (nobody, Harry_Maguire)
- D. \neg Loves (Harry_Maguire)

252. The primary difference between PL and FOPL is their ontological commitment (What exists in the world — TRUTH). Do you satisfy with the statement?

- A. Do not Satisfy
- B. Satisfy
- C. Partially Satisfy
- D. Rather not say

254. Propositional logic is declarative, i.e., the pieces of syntax correspond to facts so FOPL was introduced.

- A. Strongly True
- B. Strongly False
- C. May be True
- D. May be False

255. _____ is the major families of first-order inference algorithms.

- A. Forward chaining
- B. Backward chaining
- C. Resolution
- D. All of above

256. Bayes' theorem is also known as Bayes' rule, Bayes' law, or Bayesian reasoning, which determines the probability of an event with _____.

- A. Unwanted knowledge
- B. Uncertain knowledge

259. Representing a certain knowledge using Predicate logic (PL) and First order logic (FOL): Eg; "Patient Akshay has a cavity". Represent this English sentence in logic.

- A. PL: Cavity
- B. PL: Akshay
- C. PL: Akshay $\leftarrow\rightarrow$ Cavity
- D. PL: Cavity, Akshay

FOL: Dental Disease (Akshay, Cavity)

FOL: Dental Disease (Akshay, Cavity)

FOL: Dental Disease (Cavity, Akshay)

FOL: Dental Disease (Akshay, Cavity)

260. In _____ commitments: An agent believes a sentence to be true, false or has no opinion.

- A. Ontological
- B. Epistemological
- C. Both A and B
- D. None of above

261. In _____ commitments: Facts hold or do not hold in the world.

- A. Ontological
- B. Epistemological
- C. Both A and B
- D. None of above

262. How many terms are required for building a bayes model?

- A. 1 conditional probability and 2 unconditional probability

- C. Certain Knowledge
- D. Previous Knowledge

257. _____ is unavoidable in everyday reasoning and in many real-world domains.

- A. Certainty in reasoning
- B. Uncertainty in reasoning
- C. Probability
- D. Logic

258. _____ is the main sources on uncertainty in reasoning.

- A. Imprecise knowledge
- B. Incomplete knowledge
- C. Unreliable knowledge
- D. All of above

259. Implementing _____ Bayesian network can be used to answer any user query.

- A. Partial distribution
- B. Joint distribution
- C. Full distribution
- D. Random Variable

Belief network, decision network, Bayesian model are all known as _____.

- A. Non-bayesian belief network
- B. Bayesian belief network
- C. Bayesian non-belief network
- D. None of above

260. The Bayesian network graph does not contain any cyclic graph. So, it is known as a _____.

- A. Direct Cyclic Graph
- B. Direct Acyclic Graph
- C. Cyclic Acyclic Graph
- D. Significant Acyclic Graph

261. Bayesian Network has _____ variables.

- A. Discrete
- B. 2 conditional probability and 1 unconditional probability
- C. 3 conditional probability and 0 unconditional probability
- D. 0 conditional probability and 1 unconditional probability

262. A belief network is a graph in which the following holds _____.

- A. A set of random variables
- B. A set of directive links or arrows connects pairs of nodes.
- C. The conditional probability table for each node
- D. The graph has no directed cycles
- E. All of above

263. During _____ the bayes rule can be implemented.

- A. Accessing queries
- B. Increasing reliability
- C. Decreasing reliability
- D. Answering probabilistic query

264. Bayesian network provides _____.

- A. Complete description of the domain
- B. Few descriptions of the domain
- C. Complete description of the problem
- D. Few descriptions of the problem

271. In _____ expertise is transferred from an expert to a computer and it is stored in computer.

- A. User Interface
- B. Expert System
- C. Inference Engine
- D. Natural Language Processing

272. In _____ users can call on the computer for specific advice as needed for the user.

- A. User Interface
- B. Expert System
- C. Inference Engine
- D. Natural Language Processing

273. In _____ the computer can make inferences and arrive at the conclusion.

- A. User Interface
- B. Expert System
- C. Inference Engine
- D. Natural Language Processing

274. In _____ the computer system advises the non-experts and explains, if necessary, the actual logic behind the advice which it has provided.

- A. User Interface
- B. Expert System
- C. Inference Engine
- D. Natural Language Processing

275. Expert System can _____.

- A. Display intelligent behavior
- B. Draw conclusions from complex relationships
- C. Provide portable knowledge
- D. All of the above

276. _____ is one of the components of expert system.

- A. Knowledge base and Inference Engine
- B. User Interface and Explanation subsystem (facility)
- C. Working Area
- D. All of the above

277. The _____ is one of the components of an expert system which represents facts and rules.
- Inference Engine
 - Knowledge Base
 - User Interface
 - Explanation Subsystem
278. The most basic function of the _____ is to acquire relevant data from the knowledge base, interpret it, and find a solution to the user's problem.
- User interface
 - Inference engine
 - Explanation Subsystem / module
 - None of above
279. _____ is used to allow the expert systems to acquire more data from various sources and store it in the knowledge base.
- User interface
 - Knowledge acquisition and learning module
 - Explanation Subsystem / module
 - None of above
280. _____ is essential for a non-expert user to interact with the expert system and find solutions.
- User interface
 - Knowledge acquisition and learning module
 - Explanation Subsystem / module
 - None of above
281. _____ and _____ are 2 strategies used by inference engine in Expert system.
- Forward gaining, backward gaining
 - Forward processing, backward processing
 - Forward chaining, backward chaining
 - Forward debugging, backward debugging
282. With _____ strategy, an expert system is able to answer the question, "What can happen next?"
- Backward chaining
 - Forward chaining
 - Forward debugging
 - Backward debugging
283. With _____ strategy, an expert system is able to answer the question, "Why did this happen?"
- Backward chaining
 - Forward chaining
 - Forward debugging
 - Backward debugging
284. Rule-based is the type of _____
- Computer System
 - Knowledge Base
 - Expert System
 - Inference Engine
285. A _____ is nothing but expert system without knowledge base.
- Tools
 - User Interface
 - Shell
 - Inference Engine
286. What is the full form of JESS in Expert System Technology?
- Javascript Expert Sub System
 - Javascript Expert System Shell
 - Java Expert Sub System
 - Java Expert System Shell
287. _____ means how a particular thing can be accomplished in AI.
- Procedural knowledge
 - Declarative knowledge
 - Tacit Knowledge
 - Explicit Knowledge
- means basic knowledge in AI.
- Procedural knowledge
 - Declarative knowledge
 - Tacit Knowledge
 - Explicit Knowledge
- emphasize how to do something to solve a given problem.
- Procedural knowledge
 - Declarative knowledge
 - Tacit Knowledge
 - Explicit Knowledge
- emphasize what to do something to solve a given problem.
- Procedural knowledge
 - Declarative knowledge
 - Tacit Knowledge
 - Explicit Knowledge
- is the extraction of knowledge from sources of expertise, and transfer to the knowledge base.
- Knowledge requisition
 - Knowledge acquisition
 - Knowledge processing
 - Knowledge debugging
- may also include acquiring knowledge from other sources such as books, technical manuscript and drawings.
- Knowledge requisition
 - Knowledge elicitation
 - Knowledge processing
 - Knowledge debugging
- Knowledge engineer performs _____ important tasks
- Identifying the problem domain.
 - Choosing the right expert.
 - Preparing for knowledge acquisition.
 - All of above
294. During choosing the right expert for implementing on Expert System _____ should be one of the desirable characteristics of expert.
- Knows when to follow heuristics and when to make exceptions.
 - Sees the big picture.
 - Possesses good communication skills.
 - All of above
295. _____ are the tasks performed in knowledge acquisition.
- Collect and interpret
 - Analyze
 - Design
 - All of above
296. Introspection, Observation, Induction, Protocol Analysis, Prototyping and Interviewing are the techniques of _____
- Knowledge Processing
 - Knowledge elaboration
 - Knowledge acquisition
 - Knowledge debugging
297. _____ is the process of communicating with a computer in natural language via keyboard or voice.
- Natural Language Processing
 - Natural Sentence Processing
 - Machine Learning
 - Computer Visioning
298. _____ refers to AI method of communicating with an intelligent system using a natural language such as English, Nepali, Hindi etc.
- Natural Language Processing
 - Natural Sentence Processing
 - Machine Learning
 - Computer Visioning

299. _____ is the main challenges of NLP.

- A. Handling Ambiguity of Sentences
- B. Handling Tokenization
- C. Handling POS-Tagging
- D. All of the mentioned

300. These are the 2 components of natural language processing.

- A. Natural language debugging and natural language compiling
- B. Natural language publishing and natural language maintenance
- C. Natural language organizing and natural language implementing
- D. Natural language understanding and natural language generation

301. _____ is a subfield of natural language processing (NLP), which involves transforming human language into a machine-readable format.

- A. Natural language debugging
- B. Natural language compiling
- C. Natural language understanding
- D. Natural language generation

302. Automatic Ticket Routing, Machine Translation (MT), Automated Reasoning, Automatic Ticket Tagging & Reasoning, Question Answering etc. these are the examples of _____

- A. Natural language debugging
- B. Natural language compiling
- C. Natural language understanding (NLU)
- D. Natural language generation

303. _____ produces natural written or spoken language from structured and unstructured data.

- A. Natural language debugging
- B. Natural language compiling
- C. Natural language understanding (NLU)
- D. Natural language generation

304. _____ is used for generating the responses of chatbots and voice assistants such as Amazon's Alexa, Google's Assistant and Apple's Siri.

- A. Natural language debugging
- B. Natural language publishing
- C. Natural language compiling (NLU)
- D. Natural language understanding

305. Chatbots and "suggested text" features in email clients, such as Gmail's Smart Compose, are examples of applications that use both

- A. Natural language debugging and natural language compiling
- B. Natural language publishing and natural language maintenance
- C. Natural language organizing and natural language implementing
- D. Natural language understanding and natural language generation

306. _____ are the NLG models and methodologies.

- A. Long-Short term memory
- B. Recurrent Neural Network
- C. Markov chain
- D. All of above

307. NLP is difficult because _____

- A. Imparting world knowledge is difficult.
- B. Fictitious words ..
- C. Poorly defined scopes
- D. All of above

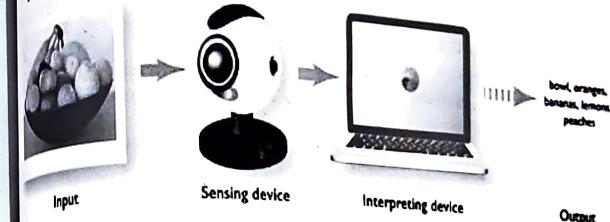
308. _____ is not the application of NLP.

- A. Opening Computer Browser
- B. Sentiment Analysis
- C. Text Classification
- D. Chat bots and Virtual Assistants

deals with How to design computers that can see (that is understand and interpret information in images/video).

- A. Computer Application generation
- B. Computer Vision
- C. NLP
- D. None of above

310. Consider the below image and answer the best solution. This figure is the complete process of _____



- A. Computer Application generation
- B. Computer Vision
- C. NLP
- D. NLG

311. Two key technologies drive _____ : a convolutional neural network and deep learning, a type of machine learning.

- A. Computer Application generation
- B. Computer Vision
- C. NLP
- D. NLG

312. A computer vision technique that relies on image templates is:

- A. Edge detection
- B. Binocular vision
- C. Model-based vision
- D. Robot vision

310. In _____ by applying machine learning models to images, computers can classify objects and respond like unlocking your smartphone when it recognizes your face.

- A. Computer Application generation
- B. Computer Vision
- C. NLP
- D. NLG

314. _____ is the use of devices for optical, non-contact sensing to receive and interpret an image of a real scene automatically, in order to obtain information and/or control machines or processes.

- A. Machine Vision / Computer Vision
- B. Binocular vision
- C. Model-based vision
- D. Robot vision

315. _____ is a programmable machine that imitates the actions or appearance of an intelligent human.

- A. Robot
- B. Pattern Recognition
- C. Image Recognition
- D. Agent

316. To qualify as a _____, it should be able to do following works:

- Get information from its surroundings
- Physically move or manipulate objects
- Robot
- Machine
- Image Recognizer
- Agent

317. Following are the tasks that _____ can perform. Soldering wires to semiconductor chips, assembling cookies for Pepperidge, Painting cars at Ford plants, walking into live volcanoes, driving trains in Paris, flying to other planets to explore, Dive into deep water to recover things etc.

- Robot
- Machine
- Image Recognizer
- Agent

318. _____ is the study of robots, autonomous embodied systems interacting with the physical world.

- Dynamics
- Physics
- Robotics
- Kinematics

319. _____ is the Robot control approaches in AI

- Reactive control
- Pro-active control
- Non-reactive control
- Formal control

320. _____ has the ability to learn without being explicitly programmed.

- Application Learning (AL)
- Machine Learning (ML)
- Neural Network (NN)
- Computer Vision (CV)

321. ML is field of AI, consisting of learning algorithms that _____ over time with experience

- Over time with experience
- At executing some task
- Improve their performance
- All of the above

322. _____ plays an important role in improving and understanding the efficiency of human learning.

- Machine Learning
- Artificial Intelligence
- Convolutional Neural Network
- Bayes Network

323. _____ is one of the forms of machine learning.

- Rote learning
- Induction learning
- Explanation based learning
- All of above

324. _____ is possible on the basis of memorization.

- Rote learning
- Induction learning
- Explanation based learning
- All of above

325. In _____ process, a general rule is induced by the system from a set of observed instances.

- Rote learning
- Induction learning
- Explanation based learning
- None of above

326. _____ deals with an idea of single example learning.

- Rote learning
- Induction learning
- Explanation based learning
- None of above

327. _____ learning is more data-intensive data-driven while _____ learning is more knowledge-intensive, knowledge-driven.

- Instance-based, Explanation based
- Rote, Explanation
- Explanation based, Instance-based
- Explanation, Rote

328. learning algorithms are trained using labeled data.

- Un-supervised
- Reinforcement
- Supervised
- Semi-supervised

329. learning algorithms are trained using unlabeled data.

- Un-supervised
- Reinforcement
- Supervised
- Semi-supervised

330. _____ learning model takes direct feedback to check if it is predicting correct output or not.

- Un-supervised
- Reinforcement
- Supervised
- Semi-supervised

331. _____ learning model does not take any feedback.

- Un-supervised
- Reinforcement

332. Consider the labelled dataset below. It is a dataset of a shopping store which is useful in predicting whether a customer will purchase a particular product under consideration or not based on his/ her gender, age and salary.

| User ID | Gender | Age | Salary | Purchased |
|----------|--------|-----|--------|-----------|
| 15624510 | Male | 19 | 19000 | 0 |
| 15810544 | Male | 35 | 20000 | 1 |
| 15668575 | Female | 26 | 43000 | 0 |
| 15603246 | Female | 27 | 57000 | 0 |
| 15804002 | Male | 19 | 76000 | 1 |
| 15728773 | Male | 27 | 58000 | 1 |
| 15598044 | Female | 32 | 84000 | 0 |
| 15694829 | Female | 25 | 150000 | 1 |
| 15600575 | Male | 35 | 33000 | 0 |
| 15727311 | Female | 26 | 65000 | 0 |
| 15570769 | Female | 26 | 80000 | 1 |
| 15606274 | Female | 20 | 52000 | 0 |
| 15746139 | Male | 32 | 86000 | 1 |
| 15704987 | Male | 18 | 18000 | 0 |
| 15628972 | Male | 29 | 82000 | 0 |
| 15697686 | Male | 29 | 80000 | 0 |
| 15733883 | Male | 47 | 25000 | 1 |

Input: Gender, Age, Salary.

Output: Purchased i.e., 0 or 1.

Now look at the prediction data of "Purchased" column in given table and determine which model is this.

- Regression
- Classification
- Association

- Supervised
- Semi-supervised

332. While training the supervised model, data is usually split in the ratio of

- 20:80
- 80:20
- 60:40
- 40:60

333. _____ are the two types of Supervised learning.

- Classification and Regression
- Clustering and Association
- Classification and Association
- Clustering and Regression

334. _____ is a process of finding a function which helps in dividing the dataset into classes based on different parameters.

- Classification
- Regression
- Clustering
- Association

335. _____ is a process of finding the correlations between dependent and independent variables.

- Classification
- Regression
- Clustering
- Association

337. Consider the labelled data set below. It is a Meteorological dataset which serves the purpose of predicting wind speed based on different parameters.

| Temperature | Pressure | Relative Humidity | Wind Direction | Wind Speed |
|-------------|-------------|-------------------|----------------|-------------|
| 10.69261758 | 986.882019 | 54.19337313 | 195.7150879 | 3.278597116 |
| 13.59184184 | 987.872948 | 48.0648859 | 189.2951202 | 2.909167767 |
| 17.70494885 | 988.1119385 | 39.11965597 | 192.9273834 | 2.973036289 |
| 20.95430400 | 987.8500366 | 30.66273218 | 202.0752869 | 2.965289593 |
| 22.9278274 | 987.2833862 | 26.06723423 | 210.6582023 | 2.798230886 |
| 24.04233986 | 986.2907104 | 23.46918024 | 221.1188507 | 2.627005816 |
| 24.4175295 | 985.2338867 | 22.25082295 | 233.7911987 | 2.448749781 |
| 23.93361956 | 984.8914795 | 22.35178837 | 244.3504333 | 2.454271793 |
| 22.68800023 | 984.8451304 | 23.7538641 | 253.0864716 | 2.418341875 |
| 20.56425726 | 984.8380737 | 27.07867944 | 264.5071106 | 2.318677425 |
| 17.76400389 | 985.4262085 | 33.54900114 | 280.7827454 | 2.343950987 |
| 11.25680746 | 988.9386597 | 53.74139903 | 68.15406036 | 1.650191426 |
| 14.37810685 | 989.6819458 | 40.70884681 | 72.62069702 | 1.553469896 |
| 18.45114201 | 990.2960205 | 30.85038484 | 71.70604706 | 1.005017161 |
| 22.54895853 | 989.9562988 | 22.81738811 | 44.66042709 | 0.264133632 |
| 24.23155922 | 988.796875 | 19.74790765 | 318.3214111 | 0.329656571 |

Input: Temperature, Pressure, Relative Humidity, Wind Direction.

Output: Wind Speed.

Now look at the prediction data of "Wind Speed" column in given table and determine which modes is this.

- A. Regression
- B. Classification
- C. Association

- D. Clustering

338. _____ is a rule-based ML technique which finds out some very useful relations between parameters of a large data set.

- A. Regression
- B. Classification
- C. Association
- D. Clustering

339. _____ deals with "how can I group these set of items?"

- A. Regression
- B. Classification
- C. Association
- D. Clustering

340. In _____, model keeps on increasing its performance using a Reward Feedback to learn the behavior or pattern

- A. Un-supervised learning
- B. Supervised learning
- C. Reinforcement learning
- D. Clustering

341. _____ is a machine learning training method based on rewarding desired behaviors and/or punishing undesired ones.

- A. Un-supervised learning
- B. Supervised learning
- C. Reinforcement learning
- D. Clustering

342. Consider an example, how a Robotic dog learns the movement of his arm is an example of _____

- A. Un-supervised learning
- B. Supervised learning
- C. Reinforcement learning
- D. None of above

343. Decision tree builds classification or regression models in the form of _____

- A. Root structure
- B. Forest structure
- C. Tree structure
- D. Node structure

344. _____ is one of the types of decision tree.

- A. Categorical variable decision tree
- B. Continuous variable decision tree
- C. Static variable decision tree
- D. Both A and B

345. A _____ is a decision support tool that uses a tree like graph of decisions and their possible consequences, including chance event outcomes, resource costs, and utility.

- A. Maps
- B. Graphs
- C. Decision tree
- D. Artificial NN

346. _____ are the decision tree nodes.

- A. End node
- B. Decision node
- C. Chance node
- D. All of above

347. _____ symbol is used to represent decision node in decision tree.

- A. Circles
- B. Squares
- C. Triangle
- D. Rectangles

348. _____ symbol is used to represent chance node in decision tree.

- A. Circles
- B. Squares
- C. Triangle
- D. Rectangles

349. _____ symbol is used to represent end nodes in decision tree.

- A. Circles
- B. Squares
- C. Triangle
- D. Rectangles

350. _____ Simply calculates probability of each hypothesis, given data, and makes predictions based on this.

- A. Hebbian learning
- B. Bayesian learning
- C. Neural learning
- D. Supervised learning

351. _____ is Artificial Intelligence is a set of tools for machine learning that uses statistics and functional analysis.

- A. Hebbian learning
- B. Bayesian learning
- C. Statistical learning
- D. Supervised learning

352. Fuzzy logic is a form of _____

- A. Binary valued logic
- B. Many valued logic
- C. Two valued logic
- D. No value logic

353. Fuzzy logic can be implemented in _____

- A. Software
- B. Hardware
- C. Network
- D. Both A and B

354. Fuzzy logic can produce _____ output.

- A. Only 1
- B. 2
- C. 3
- D. 4

355. _____ are the methods of Fuzzy interface system.

- A. Mamdani Fuzzy Inference System
- B. Takagi-Sugeno Fuzzy Model (TS Method)
- C. Ricart-Agrawala Model
- D. Both A and B

356. The truth values of traditional set theory is _____ and that of fuzzy set is _____

- A. Either 0 or 1, between 0 & 1
- B. Between 0 & 1, only 1
- C. Between 0 & 1, only 0
- D. Either 0 or 1, either 0 or 1

357. The store temperature is cold. Here the cold (use of linguistic variable is used) can be represented by _____

- A. Fuzzy Set
- B. Crisp Set
- C. Fuzzy & Crisp Set
- D. Variable Set

358. Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.

- A. OR
- B. NOT
- C. AND
- D. All of the mentioned

359. Fuzzy logic is usually represented as _____
- IF-THEN-ELSE rules
 - IF-ELSE-IF rules
 - IF-THEN rules
 - Both IF-THEN-ELSE rules & IF-THEN rules
360. A _____ is a search heuristic that is inspired by Charles Darwin's theory of natural evolution.
- Generation Algorithm
 - Genetic Algorithm
 - Search Algorithm
 - None of above
361. _____ involves five phases to solve the complex optimization problems.
- Generation Algorithm
 - Genetic Algorithm
 - Search Algorithm
 - None of above
362. Fitness function is used to determine how _____ an individual is?
- Fit
 - Weak
 - Tired
 - None of above
363. This is one of the types of Selection methods available is _____
- Roulette wheel selection
 - Tournament selection
 - Rank-based selection
 - All of the above
364. The operators involved in the reproduction phase are _____
- Mutation
 - Crossover
 - Genes
 - Both A and B
365. After the selection process, the creation of a child occurs in the _____ step.
- Fitness Assignment
 - Reproduction
 - Termination
 - Initialization
366. Types of Crossover styles are
- One point crossover and Two-point crossover
 - Livery crossover
 - Inheritable Algorithms crossover
 - All of above
367. The _____ operator inserts random genes in the offspring (new child) to maintain the diversity in the population which can be done by flipping some bits in the chromosomes.
- Mutation
 - Crossover
 - Genes
 - Allele
368. _____ is one of the types of mutation styles.
- Flip bit mutation
 - Gaussian mutation
 - Exchange/Swap mutation
 - All of above
369. _____ is a type of neural network which is based on a Feed-forward strategy.
- Artificial NN
 - Biological NN
 - Convolutional NN
 - None of above
370. _____ is a structure that consists of Synapse, dendrites, cell body, and axon.
- Artificial NN
 - Biological NN
 - Convolutional NN
 - None of above
371. Artificial Neural Network (ANN) is _____
- Sequential and centralized
 - Non sequential and de-centralized
 - Parallel and distributed
 - Parallel and non-distributed
372. Biological Neural Network (BNN) is _____
- Sequential and centralized
 - Non sequential and de-centralized
 - Parallel and distributed
 - Parallel and non-distributed
373. Which NN is this?
-
374. The McCulloch-Pitts neural model, which was the earliest ANN model, has only two types of inputs _____
- Extraordinary and inhabitation
 - Excitatory and Inhibitory
 - Extraordinary and Inhibition
 - Excitatory and Inhabitation
375. The excitatory inputs have weights of _____ magnitude and the inhibitory weights have weights of _____ magnitude.
- Positive, Negative
 - Negative, Positive
 - Negative, Negative
 - Positive, Positive
376. The inputs of the McCulloch-Pitts neuron could be either _____ or _____
- 0 or -1
 - 0 or 1
 - 0 or infinity
 - 0 or 2
377. Artificial Neural system are called _____
- Neural networks and neurocomputers
 - Parallel distributed processors
 - Connectionists system
 - All of above
378. An artificial neuron is designed to mimic the first-order characteristics of a _____
- Physiological neuron
 - Geological neuron
 - Biological neuron
 - None of above
379. Processing of ANN depends upon _____
- Network Topology
 - Adjustments of Weights or Learning
 - Activation Functions
 - All of above
380. A network topology in neural network is the arrangement of a network along with its _____
- Nodes and connecting lines
 - Lines and curves
 - Graphs and vectors
 - Symbols and functions
381. According to the topology, ANN can be classified as _____
- Feed forward Network
 - Feed backward Network
 - Both Feed forward and Backward Network
 - None
382. _____ is a non-recurrent network having processing units/nodes in layers and all the nodes in a layer are connected with the nodes of the previous layers.
- Feed forward Network
 - Feed backward Network
 - Both Feed forward and Backward Network
 - None

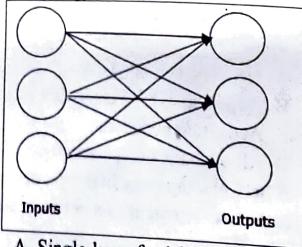
383. Feed-forward network can be divided into _____

- A. Single-layer feed forward
- B. Multi-layer feed forward
- C. No-layer feed forward
- D. Both A and B

384. The concept is of _____ ANN having only one weighted layer.

- A. Single-layer feed forward
- B. Multi-layer feed forward
- C. No-layer feed forward
- D. Both A and B

385. Identify which Neural Network Topology is this?

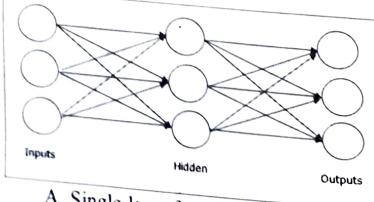


- A. Single-layer feed forward
- B. Multi-layer feed forward
- C. No-layer feed forward
- D. None

386. The concept is of _____ ANN having more than one weighted layer.

- A. Single-layer feed forward
- B. Multi-layer feed forward
- C. No-layer feed forward
- D. None

387. Identify which Neural network topology is this?



- A. Single-layer feed forward
- B. Multi-layer feed forward
- C. No-layer feed forward
- D. None

388.

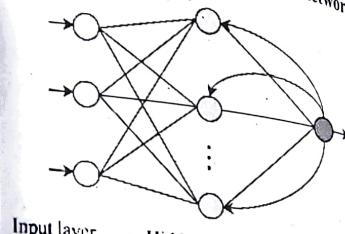
network has feedback paths, which means the signal can flow in both directions using loops.

- A. Feed forward Network
- B. Feedback Network
- C. Both Feed forward and Backward Network
- D. None

389. Feedback/ Feed backward network can be divided into _____

- A. Recurrent Network
- B. Fully recurrent Network
- C. Jordan Network
- D. None

390. Identify which Neural network topology is this?



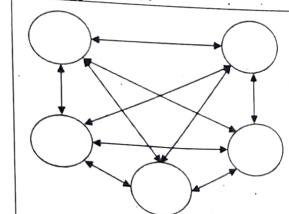
- A. Input layer
- B. Hidden layer
- C. Output layer

- A. Feed-forward
- B. Feedback
- C. Linear
- D. None of above

391. _____ neural network architecture because all nodes are connected to all other nodes and each node works as both input and output.

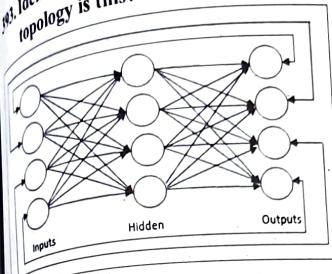
- A. Fully recurrent
- B. Jordan
- C. McClutch
- D. None of above

392. Identify which Neural network topology is this?



- A. Jordan
- B. McClutch
- C. Fully recurrent
- D. None of above

393. Identify which Neural network topology is this?



- A. Jordan
- B. McClutch
- C. Fully recurrent
- D. None of above

394. _____ is defined as the extra force or effort applied over the input to obtain an exact output.

- A. Deactivation function
- B. Activation function
- C. Parallel function
- D. Distributed function

395. Non-linear activation function can be divided on the basis of their _____

- A. Signs and ranges
- B. Range and curves
- C. Range and symbols
- D. Symbols and curves

396. The main reason why we use sigmoid function is because it exists between _____

- A. 0 to 2
- B. -1 to 1
- C. -1 to 0
- D. 0 to 1

397. The range of the tanh function is from _____

- A. 0 to 2
- B. -1 to 1
- C. -1 to 0
- D. 0 to 1

398. The range of the Re-Lu function is from _____

- A. 0 to infinity
- B. -1 to 1
- C. Infinity to 0
- D. 0 to 1

399. The range of the Leaky Re-Lu function is from _____

- A. 0 to infinity
- B. -1 to 1
- C. -infinity to infinity
- D. 0 to 1

400. The Neural Network architecture is made of individual units called _____ that mimic the biological behavior of the brain.

- A. Nerves
- B. Neurons
- C. Genes
- D. Chromosomes

401. _____ is a possible mechanism for synaptic modification in the brain.

- A. Hebbian Rule
- B. McCulloch pits neuron
- C. Hopfield network
- D. None of above

402. The _____ can be used to train neural networks for pattern recognition.

- A. Hebbian Rule
- B. McCulloch pits neuron
- C. Hopfield network
- D. Genetic Algorithm

403. If two neurons on either side of a synapse are activated simultaneously, the strength of the synapse will increase is _____

- A. Hebbian Learning Rule
- B. Perceptron Learning Rule
- C. Delta Learning Rule
- D. Genetic Algorithm Learning Rule

404. _____ is the one of the Neural Network Learning rules.

- A. Hebbian Learning Rule
- B. Perceptron Learning Rule
- C. Delta Learning Rule
- D. All of above

405. _____ is an error correcting the supervised learning algorithm of single layer feedforward networks with linear activation function.

- A. Hebbian Learning Rule
- B. Perceptron Learning Rule
- C. Delta Learning Rule
- D. None of above

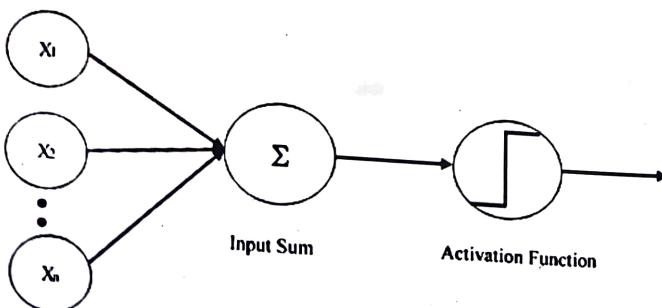
406. _____ also called Least Mean Square (LMS)

- A. Hebbian Learning Rule
- B. Perceptron Learning Rule
- C. Delta Learning Rule
- D. None of above

407. A _____ is an algorithm for supervised learning of binary classifiers. This algorithm enables neurons to learn and processes elements in the training set one at a time.

- A. Hebbian Learning
- B. Delta Learning

411. The given figure is of _____



- A. Single layer perceptron
- C. No layer perceptron

- B. Multilayer perceptron
- D. None of above

408. _____ are one of the types of perceptron.

- A. Single layer perceptron
- B. Multilayer perceptron
- C. No layer perceptron
- D. Both A and B

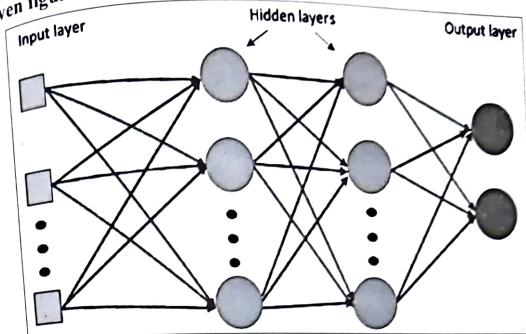
409. _____ can learn only linearly separable patterns.

- A. Single layer perceptron
- B. Multilayer perceptron
- C. No layer perceptron
- D. None of above

410. _____ can learn about two or more layers having a greater processing power.

- A. Single layer perceptron
- B. Multilayer perceptron
- C. No layer perceptron
- D. None of above

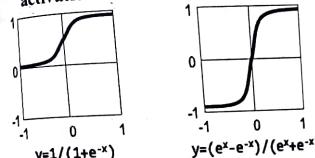
412. The given figure is of _____



- A. Single layer perceptron
- C. No layer perceptron

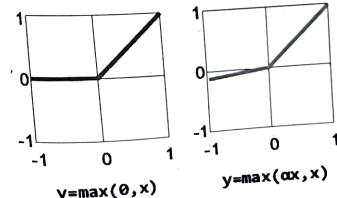
- B. Multilayer perceptron
- D. None of above

413. Identify the type of perceptron activation function.



- A. Sigmoid and tanh
- B. Tanh and sigmoid
- C. Linear, Relu
- D. Relu, Linear

414. Identify the type of perceptron activation function.



- A. Sigmoid and tanh
- B. Tanh and sigmoid
- C. Leaky Relu and Relu
- D. Relu and, Leaky Relu

415. Gradient descent is an optimization algorithm which is commonly-used to machine learning models and neural networks.

- A. Train
- B. Test
- C. Validate
- D. None of above

416. _____ is one of the types of gradient descent algorithm.

- A. Batch Gradient Descent (BGD)
- B. Stochastic Gradient Descent (SGD)
- C. Mini-Batch Gradient Descent
- D. All of above

417. The backpropagation algorithm is used for which type of neural network?

- A. Single-layer feedforward neural networks
- B. Multilayer feedforward neural networks
- C. Convolutional neural networks
- D. Recurrent neural networks

418. Which of the following is true about the backpropagation algorithm?

- A. It is a supervised learning algorithm
- B. It is an unsupervised learning algorithm
- C. It is a reinforcement learning algorithm
- D. It is a semi-supervised learning algorithm

419. The backpropagation algorithm involves two phases. What are they?

- A. Forward propagation and backward propagation
- B. Feature selection and feature extraction
- C. Clustering and classification
- D. Regression and classification

420. Which of the following is the activation function commonly used in the backpropagation algorithm?

- A. Linear
- B. Sigmoid
- C. ReLU
- D. Tanh

421. The backpropagation law is also known as generalized delta rule, is it true?

- A. Yes
- B. No
- C. Partially yes
- D. Not sure

422. _____ consists of a set of neurons where each neuron corresponds to a pixel of the difference image and is connected to all the neurons in the neighborhood.

- A. Hopfield neural network
- B. Biological neural network
- C. Hamming neural network
- D. McCulloch-Pitts neural network

423. The _____ is commonly used for association and optimization tasks.

- A. Hopfield neural network
- B. Biological neural network
- C. Hamming neural network
- D. McCulloch-Pitts neural network

424. In _____, the input and output patterns are discrete vector, which -1 in nature.

- A. Continuous Hopfield n/w
- B. Discrete Hopfield n/w
- C. Sequential Hopfield n/w
- D. None of above

425. Continuous Hopfield Network comparison with Discrete Hopfield network, continuous network has _____ as a continuous variable.

- A. Space
- B. Range
- C. Time
- D. Velocity

426. _____ architecture can be built up by adding electrical components such as amplifiers which can map the input voltage to the output voltage over a sigmoid activation function.

- A. Continuous Hopfield n/w
- B. Discrete Hopfield n/w
- C. Sequential Hopfield n/w
- D. None of above

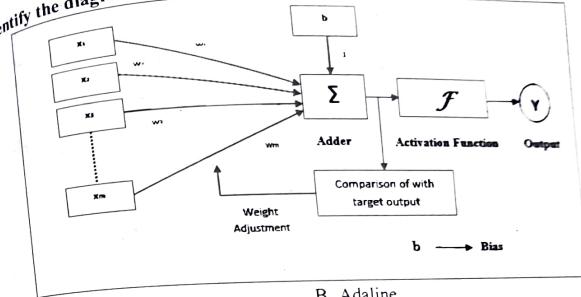
427. _____, is a network having a single linear unit.

- A. Madeline
- B. Adaline
- C. Backpropagation
- D. Perceptron

428. The basic structure of _____ is similar to perceptron having an extra feedback loop.

- A. Madeline
- B. Adaline
- C. Backpropagation
- D. None of above

429. Identify the diagram and answer the question which training algorithm is this?



- A. Madeline
- B. Adaline
- C. Perceptron
- D. Backpropagation

430. _____ is a network which consists of many Adalines in parallel.

- A. Madeline
- B. Adaline
- C. Perceptron
- D. Backpropagation

431. In NN, Delta rule works only for the _____

- A. Hidden layer
- B. Input layer

- C. Weight and bias
- D. Output layer

432. Generalized delta rule, also called as _____ rule, is a way of creating the desired values of the hidden layer.

- A. Feed-forward
- B. Backpropagation
- C. Perceptron
- D. Adaline

ANSWER SHEET

| | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.D | 2.D | 3.D | 4.A | 5.C | 6.B | 7.B | 8.C | 9.D | 10.D |
| 11.B | 12.D | 13.C | 14.D | 15.A | 16.D | 17.D | 18.A | 19.B | 20.D |
| 21.B | 22.D | 23.D | 24.D | 25.A | 26.B | 27.D | 28.D | 29.B | 30.C |
| 31.B | 32.A | 33.D | 34.C | 35.C | 36.B | 37.D | 38.A | 39.B | 40.C |
| 41.A | 42.D | 43.D | 44.C | 45.C | 46.B | 47.C | 48.B | 49.A | 50.A |
| 51.A | 52.C | 53.A | 54.B | 55.A | 56.C | 57.A | 58.A | 59.A | 60.B |
| 61.A | 62.A | 63.B | 64.B | 65.D | 66.B | 67.C | 68.A | 69.B | 70.B |
| 71.A | 72.D | 73.C | 74.B | 75.D | 76.B | 77.B | 78.B | 79.E | 80.B |
| 81.A | 82.A | 83.B | 84.B | 85.B | 86.B | 87.B | 88.D | 89.B | 90.D |
| 91.B | 92.C | 93.D | 94.A | 95.D | 96.A | 97.A | 98.B | 99.A | 100.A |
| 101.B | 102.A | 103.B | 104.B | 105.C | 106.A | 107.A | 108.A | 109.A | 110.A |

| | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 111.A | 112.A | 113.A | 114.B | 115.B | 116.B | 117.A | 118.A | 119.B | 120.A |
| 121.B | 122.A | 123.B | 124.A | 125.C | 126.C | 127.A | 128.B | 129.A | 130.D |
| 131.A | 132.C | 133.D | 134.C | 135.C | 136.A | 137.D | 138.C | 139.D | 140.A |
| 141.C | 142.B | 143.B | 144.A | 145.B | 146.B | 147.A | 148.B | 149.A | 150.C |
| 151.D | 152.D | 153.B | 154.B | 155.B | 156.B | 157.B | 158.C | 159.B | 160.B |
| 161.B | 162.B | 163.A | 164.A | 165.A | 166.A | 167.B | 168.C | 169.C | 170.B |
| 171.C | 172.B | 173.D | 174.A | 175.A | 176.B | 177.A | 178.D | 179.A | 180.B |
| 181.C | 182.C | 183.D | 184.B | 185.D | 186.D | 187.B | 188.B | 189.A | 190.D |
| 191.A | 192.A | 193.D | 194.E | 195.A | 196.C | 197.B | 198.D | 199.B | 200.D |
| 201.B | 202.C | 203.B | 204.A | 205.B | 206.C | 207.C | 208.C | 209.A | 210.B |
| 211.B | 212.D | 213.B | 214.D | 215.B | 216.C | 217.A | 218.C | 219.E | 220.C |
| 221.A | 222.B | 223.B | 224.A | 225.B | 226.C | 227.B | 228.D | 229.B | 230.A |
| 231.A | 232.C | 233.A | 234.B | 235.C | 236.D | 237.C | 238.C | 239.D | 240.B |
| 241.B | 242.B | 243.B | 244.D | 245.B | 246.C | 247.D | 248.A | 249.A | 250.B |
| 251.A | 252.A | 253.B | 254.A | 255.D | 256.B | 257.B | 258.D | 259.A | 260.B |
| 261.A | 262.A | 263.D | 264.A | 265.B | 266.B | 267.B | 268.D | 269.E | 270.A |
| 271.B | 272.B | 273.B | 274.B | 275.D | 276.D | 277.B | 278.B | 279.B | 280.A |
| 281.C | 282.B | 283.A | 284.C | 285.C | 286.D | 287.A | 288.B | 289.A | 290.B |
| 291.B | 292.B | 293.D | 294.D | 295.D | 296.C | 297.A | 298.A | 299.A | 300.D |
| 301.C | 302.C | 303.D | 304.D | 305.D | 306.D | 307.D | 308.A | 309.B | 310.B |
| 311.B | 312.B | 313.C | 314.A | 315.A | 316.A | 317.A | 318.C | 319.A | 320.B |
| 321.D | 322.A | 323.C | 324.A | 325.B | 326.C | 327.A | 328.C | 329.A | 330.C |
| 331.A | 332.B | 333.A | 334.A | 335.B | 336.B | 337.A | 338.C | 339.D | 340.C |
| 341.C | 342.C | 343.C | 344.D | 345.C | 346.D | 347.B | 348.A | 349.C | 350.B |
| 351.C | 352.B | 353.D | 354.B | 355.D | 356.A | 357.A | 358.D | 359.C | 360.B |
| 361.B | 362.A | 363.D | 364.D | 365.B | 366.D | 367.A | 368.D | 369.A | 370.B |
| 371.A | 372.C | 373.A | 374.B | 375.A | 376.B | 377.D | 378.C | 379.D | 380.A |
| 381.C | 382.B | 383.D | 384.A | 385.A | 386.B | 387.B | 388.B | 389.A | 390.B |
| 391.A | 392.C | 393.A | 394.B | 395.B | 396.D | 397.B | 398.A | 399.C | 400.B |
| 401.A | 402.A | 403.A | 404.D | 405.B | 406.C | 407.C | 408.D | 409.A | 410.B |
| 411.A | 412.B | 413.A | 414.D | 415.A | 416.D | 417.B | 418.A | 419.A | 420.B |
| 421.A | 422.A | 423.A | 424.B | 425.C | 426.A | 427.B | 428.B | 429.B | 430.A |
| 431.D | 432.B | | | | | | | | |

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