1. Which were built in such a way that humans supply the inputs and interpret the outputs?
a) Agents
b) AI system
c) Sensor
d) Actuators

2. The test conducted finds out whether a machine's ability to think is equivalent to, or indistinguishable from, that of a human, known as

a. Artificial Intelligence

b. Turing Test

c. Eliza

d. None of these

3. What type of AI system is able to perform a dedicated task with intelligence_____?

a) General AI

b) Narrow AI

c) Strong AI

d) All of these

4) we have to design an Artificial Intelligence system, which having short period of time and less storage system to store past experience, in which category this AI system falls

a. Reactive Memory

b. Limited Memory Type 2

c. Theory of Mind

d. none of these

5. When we have to design an intelligent agents, what instruments are required for perceiving and acting upon the environments?

a. sensors

b. actuators

c. perceivers

d. both a and b

6. An agent which is based on current situations and do not perceives from past experience, then the agent is defined as

a. Goal-based agent

b. utility based agent

c. situation action rule

d. none of these.

7. A function that maps a state or sequence of states, by measuring an agent over the long run based on its happy or unhappy states_____

a. simple reflex agent

b. Goal based agent

c. utility based agent

d. none of these

8. If an organization has developed an agent and they have to improve the performance of their agent. Then which approach used to improve their agent performance.

a. perceiving

b. learning

c. observing

d. none of these.

9. Which action sequences are required to accomplish the agent's goal?

a) Search
b) Plan
c) Retrieve
d) Both Search & Plan

10. DFS agents will work in which state space

a. irreversible state spaces

b. reversible state spaces

c. searchable state spaces

d. all of these

11. A production system consists of

(a) A set of Rule
(b) A sequence of steps
(c) Directly getting solution
(d) both a and b

12. Which is the most straightforward method for designing an algorithm?
a) Best-first search
b) State-space search
c) Depth-first search
d) Hill-climbing search

13. Control strategy is a strategy by which we come to know which rule is to be applied next during the process of reaching for a solution to a problem and **should always cause motion**

a. True

b. False

14. The application of rule never prevents the later application of another rule that could also have been applied at the time that the first rule was selected, defined as

a. Monotonic Production System

b. Nonmonotonic production system

c. commutative production system

d. None.

15. Heuristic function of Best First Search is

a. f(n) != h(n)

b. f(n) < h(n)

c f(n) = h(n)

d. f(n) > h(n)

16. how can the performance of an agent improved if using heuristic search.

a. based on quality of heuristic function

b. by improving quality of the nodes

c. both a and b

d. none.

17. If an intelligent agent using Breadth First Search then what is the time complexity in reaching the desired goal state?.

a. O(b^d)

b. O(b-d)

c. O(b)

d. None of these

18. depth-first search is that it can get stuck going down the wrong path and should be avoided for search trees with large or infinite maximum depths.

a. True

b. False

19. In complete, local search algorithm goal finds if one exists, an optimal algorithm always finds a global minimum/maximum.

a. True

b. False

20. If we are using Hill Climbing algorithm then when this algorithm will terminate?
a) Stopping criterion met
b) Global Min/Max is achieved
c) No neighbor has higher value
d) All of the mentioned

21. What are the main limitation of hill-climbing search?
a) Terminates at local maximum & does not find optimum solution
b) Terminates at global maximum & does not find optimum solution
c) Does not find optimum solution & fail to find a solution
d) Fail to find a solution

22. What is the role of heuristic function?
a) A function to solve mathematical problems
b) A function which takes parameters of type string and returns an integer value
c) A function whose return type is nothing
d) A function that maps from problem state descriptions to measures of desirability

23. Which of the Following problems can be solved using Constraints Satisfaction Problems?

a) 8-Puzzle problem
b) 8-Queen problem
c) Map coloring problem
d) All of the mentioned

24. If we have to prepare a schedule for a class of student. What type of problem is this?
a) Search Problem
b) Backtrack Problem
c) Constraint Satisfaction Problem
d) Planning Problem

25. Make a big jump or randomly select a state far away from the current state. This is a possible solution to overcome issue in

a. A* Algorithm

b. Best First Search

c. Hill Climbing

d. Generate and test

26. What is the heuristic function of A* algorithm

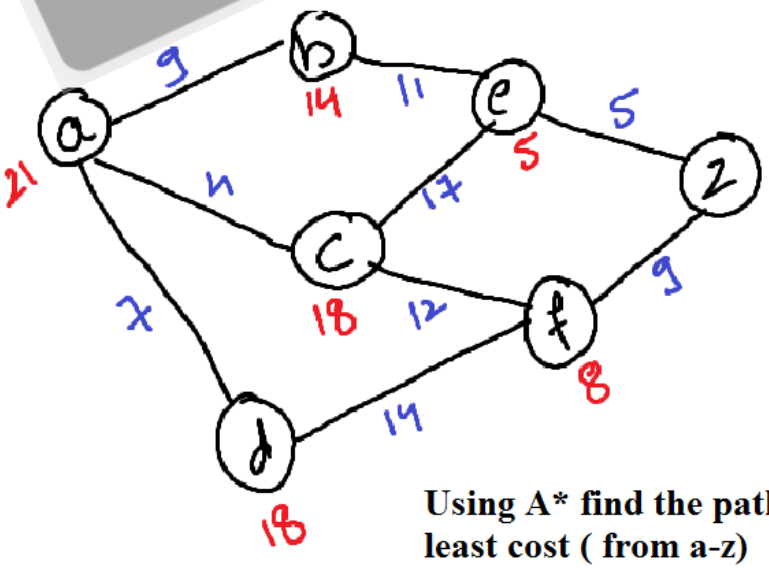
a. f(n) = g(n) != h(n)

b. f(n) = g(n) < h(n)

c. f(n) = g(n) + h(n)

d. f(n) = h(n)

27. Using A* algorithm find the path with least cost (from a to z).



Using A* find the path with least cost (from a-z)

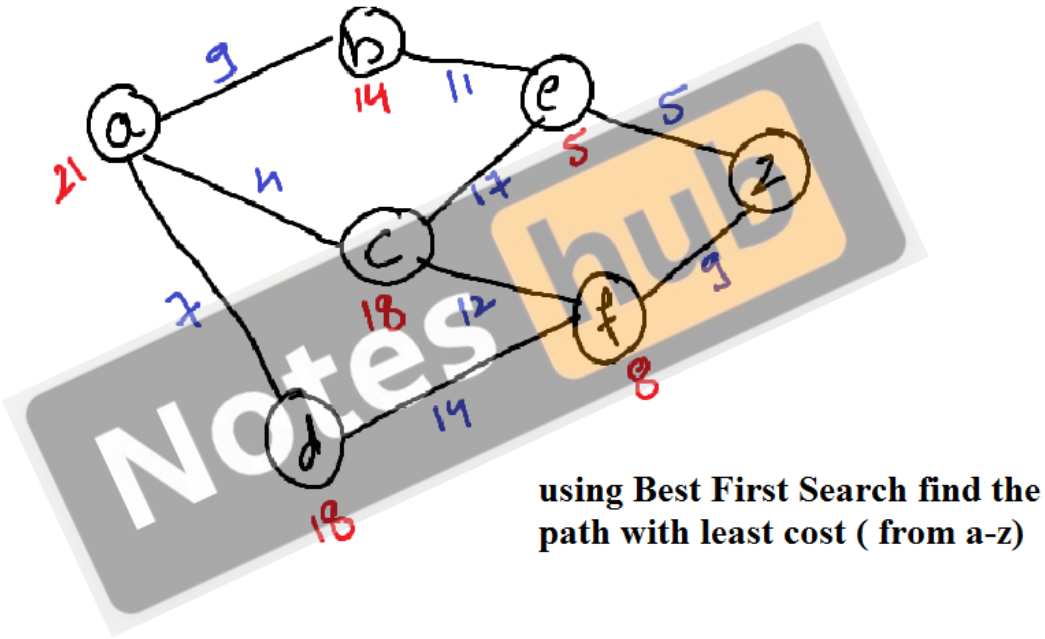
a. abez

b. abecfz

c. adfz

d. acez

28. Using Best First Search algorithm find the path with least cost (from a to z).



a. abez

b. acfz

c. adfz

d. acez

29. Which algorithm can be used in traversing graph and finding path?

a) A*

b) C*

c) D*

d) E*

30. if the next state of environment is completely determined by the current state and the actions selected by agents , then this type of agent environment is termed as

a. accessible

b. deterministic

c. episodic

d. static

---

31. Additional information or clue restricts the expansion of only promising nodes in search tree and guides the search in a specific direction towards the goal

a. True

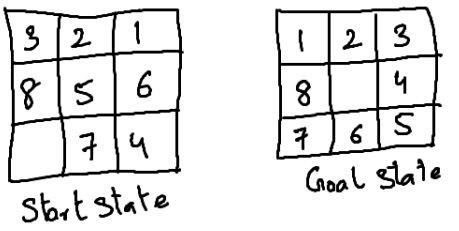
b. False

32. A Heuristic function maps the desirability of a problem state from descriptive to quantitative numbers.

a. yes

b. no

33. Compute heuristic function (h(n)) of the given 8 puzzle problem



compute heuristic function (h(n)) of the given 8 puzzle problem.

a. 12

b. 10

c. 11

d. 13

34. Which two heuristic approaches were used In DENDRAL AI?

a. hill climbing and Constraint satisfaction technique

b. A* and generate-test

c. plan-generate-test and Constraint satisfaction technique

d. none of these

35. Which heuristic technique is also termed as OR-graph?

a. A* algorithm

b. Hill climbing

c. both a and b

d. Best-First Search

36. Hill climbing is a variant of which heuristic approach

a. Best First Search

b. Generate-test

c. Depth First Search

d. both b and c.

37. How local maximum problem in Hill climbing can be overcome

a. Randomly select a state

b. move in several directions at once

c. Utilise the backtracking technique

d. None of these

38. The heuristic approach which computes distance of current node from start state and distance of current node to goal state.

a. Best First Search

b. A*

c. Hill Climbing

d. All of these

39. An heuristic algorithm is admissible heuristic if its heuristic function never_____

a. underestimates the cost to reach the goal

b. overestimate the cost to reach the goal

c. both a and b

d. None of these

40. Which data structure is used in A* algorithm

a. stack

b. queue

c. priority queue

d. both b and c

41. If a blind search technique i.e depth first search used to solve an AI problem. Then which data structure is used

a. LIFO

b. FIFO

c. Hash Table

d. none of these

42. Artificial Intelligence (AI) is a way to make machines think and behave intelligently. Then these machines are controlled by

a. hardware

b. software

c. both a and b

d. none of these

43. Which is the first artificial intelligent chatbot

a. Siri

b. Tay

c. Alexa

d. Eliza

44. During 1970 to 1980, funding was reduced in the development of AI, then this period is stated as_____

a. cold period

b. AI cold

c. AI winter

d. none of these.

45. Assume that in water jug problem, at a certain state, we required an operation i.e, “empty 3 liter jug by pouring all its water into 4 liter jug”. Then which condition is applied at this state.

a. (x+y,0)

b. (x-x1,y)

c. (x,3)

d. (x,0)

MCQS

1. Knowledge representation is represented in two ways in AI

a. machine logic

b. predicate logic

c. propositional logic

d. compund logic

2. Generate the Soundex code of “VALIDATION”

a. V433

b. V435

c.V432

d.V434

3. Transform word “MAXIMIZE” into “MINIMIZE”, then how many edit operations required.

a. 2 substitution

b. 1 insertion, 1 substitution

c. 1 deletion , 1 insertion

d. 2 insertion

4. To work with Natural Language Toolkit , the first step is to install package, which is the right command to install the package.

a. pip install nltk

b. install nltk

c. pip install

d. pip nltk

5. Transform word “HERE” into “HEAR”, then how many edit operations required.

a. 2 substitution

b. 2 insertion

c. 1 insertion and 1 substitution

d. 2 substitution and 1 insertion

6. Error caused by extra element is due to :

a. insertion

b. substitution

c. deletion

d. both a and b

7. While constructing the parse tree, the base proposition would be:

a. S

b. VP

c. NP

d. T

8. In NLP, sentence meaning is represented at

a. syntactic phase

b. semantic phase

c. discourse integration

d. none.

9. Grammatical errors checking done by

a. semantic analysis

b. syntactic analysis

c. both a and b

d. pragmatic analysis

10. Bag of Words (BoW) model is a simple algorithm used in Natural Language Processing for…

a. feature extraction

b. feature selection

c. pre-processing

d. none

11. Bag of word models doesn't respect the semantics of the word.

a. true

b. false

12. Which method is imported from NLTK package to generate Lemma.

a. wordnetlemmatizer

b. WordNetLemmatizer

c. NetLemmatizer

d. WordnetLemmatizer

13. If lemmatization is used, the base form of word "Talking" is..

a. Tal

b. Talk

c. Talki

d. Talkin

14. To construct the complex sentences, we required

a. connectives

b. logical connectives

c. symbols

d. all of the above

15. In propositional logic how many symbols are there?

a. 2

b. 3

c. 4

d. 1

1. In game searching, which algorithm is equal to minimax search which eliminate the branches that have no influence on the final decision.

a. Depth-first search

b. Breadth first search

c. Alpha-beta pruning

d. None.

2. if Alpha-Beat pruning is used to design a game, then what values are assigned to alpha and beta.

a. Alpha= max

b. beta = min

c. Beat = max

d. Alpha= max and Beta = min

3. If Alpha –Beta pruning used in game designing, then alpha-beta search values updated at.

a. initial state

b. At the end

c. Along the path of search

d. None.

4. What is the time complexity of Alpha-Beta Pruning?

a. $O(b^{d/2})$

b. $O(b^{d})$

c. $O(bd\ \ )$

d. None

5. In learning agent, performance element takes external actions through the instructions of

a. sensors

b. critic

c. knowledge

d. None of these

6. In learning agent performance of the Agent is improve by

a. performance element

b. learning element

c. critic

d. ALL

7. Machine Learning is the subfield of Artificial Intelligence consists learning algorithms that

a. improve their performance

b. at executing some task

c. over time with experience

d. ALL

8. In Machine Learning, at preprocessing stage, how missing or corrupted data can be handled

a. Drop missing rows or columns

b. Replace missing values with mean/median/mode

c. Assign a unique category to missing values

d. All of the above

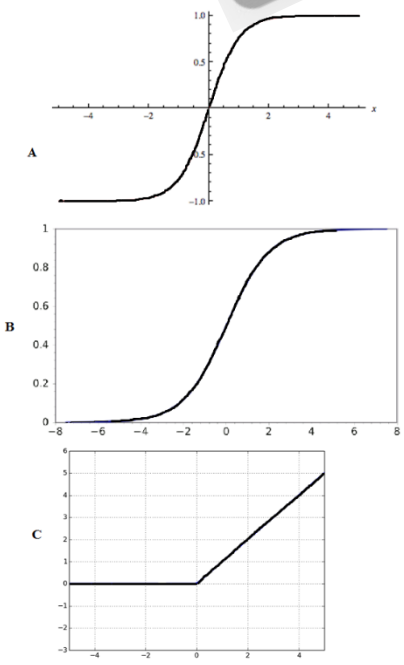
9. What is the purpose of performing cross-validation?

a. To assess the predictive performance of the models

b. To judge how the trained model performs outside the sample on test data

c. both 1 and 2

10. **Given below are three figures (A,B,C). Which of the following option is correct for these images?**



A) (A) is tanh, (B) is ReLU and (C) is SIGMOID activation functions.

B) (A) is SIGMOID, (B) is ReLU and (C) is tanh activation functions.

C) (A) is ReLU, (B) is tanh and (C) is SIGMOID activation functions.

D) (A)is tanh, (B) is SIGMOID and (C) is ReLU activation functions.

11. Suppose you are using activation function X in hidden layers of neural network. At a particular neuron for any given input, you get the output as "-0.0001". Which of the following activation function could X represent?

A) ReLU

B) tanh

C) SIGMOID

D) None of these

12. Imagine you are working on a binary classification problem. You trained a model on training dataset and get the below confusion matrix on validation dataset.

n=165	**Predicted: NO**	**Predicted: YES**
Actual: NO	50	10
Actual: YES	5	100

Based on the above confusion matrix, choose which option(s) below will give you correct predictions?

1. Accuracy is ~0.91
2. Misclassification rate is ~ 0.91
3. False positive rate is ~0.95
4. True positive rate is ~0.95

A) 1 and 3
B) 2 and 4
C) 1 and 4
D) 2 and 3

13. In the game tree as shown in figure, apply Minimax algorithm and compute the values of node A,B &C:
a. A= -3, B= 4, C= 4
b. A= 4, B= 4, C= -3
c. A= 4, B= -3, C= 6
d. A= 6, B= -3, C= 4

14. If alpha-beta pruning is applied in designing a game tree, then how effectiveness can be increased on
a. depends on nodes
b. depends on the order in which they are executed
b. ALL
d. None.

15. In game tree the feasibility is calculated through
a. evaluation function
b. transposition
c. alpha-beta pruning
d. ALL

16. In biological nucleus holds genetic information and this genetic information stored in
a. chromosomes
b. DNA
c. nucleus
d. chromatin

17. Genetic value for a particular chromosomes is known as
a. Gene
b. Allele
c. genotype
d. both a and b

18. The space in which the solutions are represented in such a way that can be easily understood and manipulated using a computing system
a. phenotype space
b. population
c. genotype space
d. none

19. Fuzzy logic is the form of
a) Two-valued logic
b) Crisp set logic
c) Multi-valued logic
d) Three- valued logic

20. The truth values of classical logic is _____ and that of fuzzy logic is _____

a) Either 0 or 1, between 0 & 1
b) Between 0 & 1, either 0 or 1
c) Between 0 & 1, between 0 & 1
d) Either 0 or 1, either 0 or 1