Multiple Choice Questions and Answers

By [Sunil Ghimire](#)- "**I try not to clutter common sense for the illusion of knowledge**"

1. A game can be formally defined as a kind of search problem with the following

   a. Initial State

   b. Successor Function

   c. Terminal Test

   d. **All the mentioned**

Explanation: The initial state includes the board position and identifies the player to move. A successor function returns a list of (move, state) pairs, each indicating a legal move and the resulting state. A terminal test determines when the game is over. States, where the game has ended, are called terminal states. A utility function (also called an objective function or payoff function), which gives a numeric value for the terminal states. In chess, the outcome is a win, lose, or draw, with values +1, -1, or 0.

2. Backpropagation is defined by

   a. **The transmission of error back through the network to allow weights to be adjusted so that the network can learn**

   b. The transmission of error back through the network to adjust the weights

   c. Another name was given to the curvy function in the perceptron

   d. All of above

Explanation: Back Propagation is the transmission of error back through the network to allow weights to be adjusted so that the network can learn.

3. Which of the following is not the promise of the Artificial Neural Network?

   a. It can handle noise

   b. It can survive the failure of some nodes

   c. **It can explain results**

   d. It has inherent Parallelism

Explanation: The Artificial Neural Network (ANN) cannot explain the result.

4. Which of the following is not the application of Neural Network?

   a. Risk Management

   b. Data Validation

   c. **Both of the above**

   d. None of them

Explanation: Both mentioned options a and b are the application of Neural Network.

5. PROLOG is an AI programming language that solves problems with a form of symbolic logic known as predicate calculus. It was developed in 1972 at the University of Marseilles by a team of specialists. Can you name the person who headed this team?
    a. John McCarthy
    b. Niklaus Wirth
    c. Seymour Papert
    d. Alian Colmeraurer

Explanation: Alain Colmerauer (24 January 1941 – 12 May 2017) was a French computer scientist. He was a professor at Aix-Marseille University and the creator of the logic programming language Prolog.

6. What is cybernetics?
    a. Study of communication between two humans.
    b. Study of communication between human and machine
    c. Study of Boolean Values.
    d. None of them

Explanation: The word "Cybernetics" was first defined by Norbert Wiener, in his book from 1948 of that title, as the study of control and communication in the animal and the machine. The term cybernetics stems from the Greek κυβερνήτης (kybernētēs, steersman, governor, pilot, or rudder — the same root as government).

7. A program that allows the computer to simulate conversation with a human being
    a. Speech Application Program Interface
    b. Speech Recognition
    c. Chatterbot
    d. Alexa

Explanation: A chatbot is a computer program that simulates human conversation through voice commands or text chats or both. Chatbot, short for chatterbot, is an artificial intelligence (AI) feature that can be embedded and used through any major messaging applications.

8. To invoke the LISP system, you must try
    a. AI
    b. LISP
    c. CL(Common LISP)
    d. LISP and CL

Explanation: To invoke the LISP system, you must try both LISP and CL

9. In 1985, the famous chess player David Levy beat a world champion chess program in four straight games by using orthodox moves that confused the program. What was the name of the chess program?
    a. Kaissa
    b. CRAY BLITZ
    c. Golf
    d. PARI

Explanation: The computer chess program Cray Blitz is currently the World Computer Chess Champion and the North American Computer Chess Champion. In human competition, Cray Blitz has obtained master-level performance ratings. Cray Blitz runs on the most powerful computer system currently available, the Cray X-MP multiprocessor machine.

10. An AI techniques that allow the computer to understand associations and relationships between objects and event is called:
    a. Cognitive Science
    b. Relative Symbolism
    c. Heuristic Processing
    d. None of above

Explanation: Pattern Matching is AI techniques that allow the computer to understand associations and relationships between objects and event.

11. What are AI neural networks?
    a. Model how the human brain works
    b. Enables the machine to think and learns as human do
    c. Both of them
    d. None of them

Explanation: An artificial neural network (ANN) is the piece of a computing system designed to simulate the way the human brain analyzes and enables the machine to think and learns as humans do. It is the foundation of artificial intelligence (AI) and solves problems that would prove impossible or difficult by human or statistical standards.

12. Which of the following hyperparameter(s), when increased may cause the random forest to overfit the data?
    a. Number of trees
    b. Depth of tree
    c. Learning Rate
    d. All of the above

Explanation: The hyperparameter when increased may cause the random forest to overfit the data is the Depth of a tree. Overfitting occurs only when the depth of the tree is increased. In a random forest, the rate of learning is generally not a hyperparameter. Underfitting can also be caused due to increase in the number of trees.

13. Let's say, you are using activation function X in the hidden layers of the neural network. At a particular neuron for any given input, you will get the output as "-0.0001". Which of the following activation function could X represent?
   a. ReLu
    b. Tanh
    c. SIgmoid
    d. None of above

Explanation: The function is a Tanh because this function output range is between (-1,-1).

14. Which of the following is leave-one-out-cross-validation accuracy for 3-NN(3- nearest neighbor)?

    a. 0.2

    b. 0.4

    c. 0.8

    d. 1

Explanation: In Leave-One-Out cross-validation, we will select (n-1)

observations for training and 1 observation of validation. Consider each point as

a cross-validation point and then find the 3 nearest points to this point. So if you

repeat this procedure for all points you will get the correct classification for all

positive class given in the figure but the negative class will be misclassified.

Hence you will get 80% accuracy.
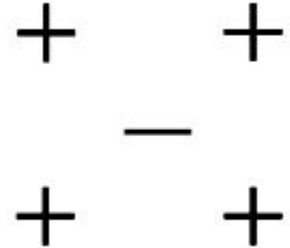
15. Which is false about the linear model?

    a. Errors in linearity assumptions

    b. Can't solve overfitting problems

    c. You can use it to calculate outcomes or binary outcomes

    d. Always autocorrelation

Explanation: Autocorrelation refers to the degree of correlation between the values of the same variables

across different observations in the data. In a regression analysis, the autocorrelation of the regression residuals

can also occur if the model is incorrectly specified. For example, if you are attempting to model a simple linear

relationship but the observed relationship is non-linear (i.e., it follows a curved or U-shaped function), then the

residuals will be autocorrelated.

16. Why would you use batch normalization?

    a. To standardize the data before sending it to another layer

    b. To normalize the weights before sending it to another layer

    c. To evaluate the bais before sending it to another layer

    d. None of the above

Explanation: Batch normalization is a technique to standardize the inputs to a network, applied to either the

activations of a prior layer or inputs directly. Batch normalization accelerates training, in some cases by halving

the epochs or better, and provides some regularization, reducing generalization error.

17. The network that involves backward links from output to the input and hidden layers is called _____

    a. Self-organizing maps

    b. Perceptrons

    c. Recurrent Neural Network

    d. Multi-Layered Perceptron

Explanation: RNN (Recurrent neural network) topology involves backward links from output to the input and

hidden layers.

18. What is the name of the function in the following statement "A perceptron adds up all the weighted inputs it receives, and if it exceeds a certain value, it outputs a 1, otherwise it just outputs a 0"?

    a. Step Function

    b. Heaviside Function

    c. Logistic Function

    d. Perceptron Function

Explanation: Also known as the step function – so answer 1 is also right. It is a hard thresholding function, either on or off with no in-between.

19. Which produces hypotheses that are easy to read for humans?

    a. Inductive Logic Programming (ILP)

    b. Artificial Intelligence

    c. Propositional Logic

    d. First-order Logic

Explanation: Because ILP can participate in the scientific cycle of experimentation So that it can produce a flexible structure.

20. An algorithm A is admissible if _____

    a. It is not guaranteed to return an optimal solution when one exists

    b. It is guaranteed to return an optimal solution when one exists

    c. It returns more solutions, but not an optimal one

    d. It guarantees to return more optimal solutions

Explanation: An algorithm A is admissible if it is guaranteed to return an optimal solution when one exists

For College Students:

When I was in college,
there was a point when I felt completely Lost,
I was clueless about what to do next,
I was not sure about how to go ahead in my career.

I had Big dreams, sky-high goals, wanted to be the best,
but all I could see around me was just DARKNESS.

I discussed my goals with friends, they laughed.
I went to my seniors, they gave random advice.
I felt more sad, I felt more lost,
Finally what helped me in the end, was only my Inner Strength.

I used to watch a lot of motivational videos,
I used to read a lot of motivational quotes,
And somehow with all my inner strength,
I trained my mind to be Optimistic, put in the best efforts, & just keep moving ahead.

If you're someone going through a similar situation,
just listen my friend,

`There might be all darkness around you right now,
but there will definitely be Light at the end of the tunnel.`

Gather all your courage,
gather all your strength, & just keep moving.

Take baby steps, go a little slow,
you might feel Low, but keep moving!

Don't give up, don't ever stop,
BELIEVE in YOURSELF, & keep moving!

My friend, just keep moving ahead!

Lastly,
Two lines which are very close to my heart,

`मंजिल मिल ही जायेगी भटकते ही सही,
गुमराह तो वो है जो घर से निकले ही नहीं`