**Artificial Intelligence Questions and Answers – Neural Networks – 2**

**This set of AI Multiple Choice Questions & Answers focuses on “Neural Networks – 2”.**

1. Why is the XOR problem exceptionally interesting to neural network researchers?  
a) Because it can be expressed in a way that allows you to use a neural network  
b) Because it is complex binary operation that cannot be solved using neural networks  
c) Because it can be solved by a single layer perceptron  
**d) Because it is the simplest linearly inseparable problem that exists.**View Answer

Answer: d  
Explanation: None.

2. What is back propagation?  
a) It is another name given to the curvy function in the perceptron  
b) It is the transmission of error back through the network to adjust the inputs  
**c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn**  
d) None of the mentioned  
View Answer

Answer: c  
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. Why are linearly separable problems of interest of neural network researchers?  
a) Because they are the only class of problem that network can solve successfully  
**b) Because they are the only class of problem that Perceptron can solve successfully**  
c) Because they are the only mathematical functions that are continue  
d) Because they are the only mathematical functions you can draw  
**View Answer**

**Answer: b  
Explanation: Linearly separable problems of interest of neural network researchers because they are the only class of problem that Perceptron can solve successfully.**

4. Which of the following is not the promise of artificial neural network?  
**a) It can explain result**  
b) It can survive the failure of some nodes  
c) It has inherent parallelism  
d) It can handle noise  
View Answer

**Answer: a  
Explanation: The artificial Neural Network (ANN) cannot explain result.**

5. Neural Networks are complex \_\_\_\_\_\_\_\_\_\_\_\_\_\_ with many parameters.  
**a) Linear Functions**  
b) Nonlinear Functions  
c) Discrete Functions  
d) Exponential Functions  
View Answer

**Answer: a  
Explanation: Neural networks are complex linear functions with many parameters.**

6. 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) True**  
b) False  
c) Sometimes – it can also output intermediate values as well  
d) Can’t say  
View Answer

Answer: a  
Explanation: Yes the perceptron works like that.

**7. The name for the function in question 16 is  
a) Step function  
b) Heaviside function  
c) Logistic function  
d) Perceptron function  
View Answer**

**Answer: b  
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.**

8. Having multiple perceptrons can actually solve the XOR problem satisfactorily: this is because each perceptron can partition off a linear part of the space itself, and they can then combine their results  
a) True – this works always, and these multiple perceptrons learn to classify even complex problems  
b) False – perceptrons are mathematically incapable of solving linearly inseparable functions, no matter what you do  
**c) True – perceptrons can do this but are unable to learn to do it – they have to be explicitly hand-coded**(because weighted are given by programmer)  
d) False – just having a single perceptron is enough  
View Answer

Answer: c  
Explanation: None.

9. The network that involves backward links from output to the input and hidden layers is called as \_\_\_\_  
a) Self organizing maps  
b) Perceptrons  
**c) Recurrent neural network**  
d) Multi layered perceptron  
View Answer

Answer: c  
Explanation: RNN (Recurrent neural network) topology involves backward links from output to the input and hidden layers.

10. Which of the following is an application of NN (Neural Network)?  
a) Sales forecasting  
b) Data validation  
c) Risk management  
**d) All of the mentioned**  
View Answer

Answer: d  
Explanation: All mentioned options are applications of Neural Network.

<https://analyticsindiamag.com/most-common-activation-functions-in-neural-networks-and-rationale-behind-it/(activation> function)

<https://analyticsindiamag.com/6-types-of-artificial-neural-networks-currently-being-used-in-todays-technology/(types> of neural network)

<https://www.vskills.in/practice/startPracticeTest/Neural-Network-Test>

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<https://medium.com/get-started?completedAction=eyJ1c2VyRm9sbG93Ijp7InVzZXJJZCI6IjRkMTM3YWYxZDYwOCJ9LCJhY3Rpb25UeXBlIjoidXNlckZvbGxvdyJ9&redirectUrl=https%3A%2F%2Fmedium.com%2F%40jayeshbahire%2Fthe-xor-problem-in-neural-networks-50006411840b>

**Artificial Intelligence Questions and Answers – Decision Trees**

**This set of Artificial Intelligence Multiple Choice Questions & Answers (MCQs) focuses on “Decision Trees”.**

1. A \_\_\_\_\_\_\_\_\_ is a decision support tool that uses a tree-like graph or model of decisions and their possible consequences, including chance event outcomes, resource costs, and utility.  
**a) Decision tree**  
b) Graphs  
c) Trees  
d) Neural Networks  
**View Answer**

**Answer: a  
Explanation: Refer the definition of Decision tree.**

2. Decision Tree is a display of an algorithm.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: None.

3. Decision Tree is  
a) Flow-Chart  
b) Structure in which internal node represents test on an attribute, each branch represents outcome of test and each leaf node represents class label  
**c) Flow-Chart & Structure in which internal node represents test on an attribute, each branch represents outcome of test and each leaf node represents class label**  
d) None of the mentioned  
**View Answer**

**Answer: c  
Explanation: Refer the definition of Decision tree.**

4. Decision Trees can be used for Classification Tasks.  
**a) True**  
b) False  
View Answer

Answer: a  
Explanation: None.

5. Choose from the following that are Decision Tree nodes  
a) Decision Nodes  
b) End Nodes  
c) Chance Nodes  
**d) All of the mentioned**  
View Answer

Answer: d  
Explanation: None.

6. Decision Nodes are represented by \_\_\_\_\_\_\_\_\_\_\_\_  
a) Disks  
**b) Squares**  
c) Circles  
d) Triangles  
View Answer

Answer: b  
Explanation: None.

7. Chance Nodes are represented by,  
a) Disks  
b) Squares  
**c) Circles**  
d) Triangles  
View Answer

Answer: c  
Explanation: None.

8. End Nodes are represented by \_\_\_\_\_\_\_\_\_\_  
a) Disks  
b) Squares  
c) Circles  
**d) Triangles**  
View Answer

Answer: d  
Explanation: None.

9. Following are the advantage/s of Decision Trees. Choose that apply.  
a) Possible Scenarios can be added  
b) Use a white box model, If given result is provided by a model  
c) Worst, best and expected values can be determined for different scenarios  
**d) All of the mentioned**  
View Answer

Answer: d  
Explanation: None.

[*https://www.scribd.com/doc/219657949/Decision-Science-MCQ-UOP*](https://www.scribd.com/doc/219657949/Decision-Science-MCQ-UOP)

**Artificial Intelligence Questions and Answers – Perception**

**This set of Artificial Intelligence Multiple Choice Questions & Answers (MCQs) focuses on “Perception”.**

1. The process by which you become aware of messages through your sense is called  
a) Organization  
b) Sensation  
c) Interpretation-Evaluation  
**d) Perception**  
View Answer

Answer: d  
Explanation: None.

2. Susan is so beautiful; I bet she is smart too. This is an example of  
**a) The halo effect**  
b) The primary effect  
c) A self-fulfilling prophecy  
d) The recency effect  
View Answer

Answer: a  
Explanation: None.

3. \_\_\_\_\_ prevents you from seeing an individual as an individual rather than as a member of a group.  
a) Cultural mores  
b) Stereotypes  
**c) Schematas**  
d) Attributions  
View Answer

Answer: c  
Explanation: None.

4. When you get fired from your job and you determine it is because your boss dislikes you, you are most likely exhibiting  
a) Self-promotion  
b) Fundamental attribution error  
c) Over-attribution  
**d) Self-serving bias**  
View Answer

Answer: d  
Explanation: None.

5. Mindless processing is  
a) careful, critical thinking  
b) inaccurate and faulty processing  
**c) information processing that relies heavily on familiar schemata**  
d) processing that focuses on unusual or novel events  
View Answer

Answer: c  
Explanation: None.

6. Selective retention occurs when  
**a) we process, store, and retrieve information that we have already selected, organized, and interpreted**  
b) we make choices to experience particular stimuli  
c) we make choices to avoid particular stimuli  
d) we focus on specific stimuli while ignoring other stimuli  
View Answer

Answer: a  
Explanation: None.

7. Which of the following strategies would NOT be effective at improving your communication competence?  
**a) Recognize the people, objects, and situations remain stable over time**b) Recognize that each person’s frame of perception is unique  
c) Be active in perceiving  
d) Distinguish facts from inference  
View Answer

Answer: a  
Explanation: None.

8. \_\_\_\_\_\_\_\_\_\_\_\_\_ is measured by the number of mental structures we use, how abstract they are, and how elaborate they interact to shape our perceptions.  
a) intrapersonal structure  
b) perceptual set  
c) self-justification  
**d) none of the mentioned**  
View Answer

Answer: d  
Explanation: None.

9. A perception check is  
a) a cognitive bias that makes us listen only to information we already agree with  
b) a method teachers use to reward good listeners in the classroom  
c) any factor that gets in the way of good listening and decreases our ability to interpret correctly  
**d) a response that allows you to state your interpretation and ask your partner whether or not that interpretation is correct**  
View Answer

Answer: d  
Explanation: None.

Artificial Intelligence Questions and Answers – Neural Networks – 1

This set of Artificial Intelligence Multiple Choice Questions & Answers (MCQs) focuses on “Neural Networks – 1”.

**1. A 3-input neuron is trained to output a zero when the input is 110 and a one when the input is 111. After generalization, the output will be zero when and only when the input is:  
a) 000 or 110 or 011 or 101  
b) 010 or 100 or 110 or 101***c) 000 or 010 or 110 or 100* **d) 100 or 111 or 101 or 001  
View Answer**

**Answer: c**Explanation: The truth table before generalization is:  
Inputs Output  
000 $  
001 $  
010 $  
011 $  
100 $  
101 $  
110 0  
111 1  
where $ represents don’t know cases and the output is random.  
After generalization, the truth table becomes:  
Inputs Output  
000 0  
001 1  
010 0  
011 1  
100 0  
101 1  
110 0  
111 1  
.

2. A perceptron is:  
**a) a single layer feed-forward neural network with pre-processing**  
b) an auto-associative neural network  
c) a double layer auto-associative neural network  
d) a neural network that contains feedback  
View Answer

**Answer: a  
Explanation: The perceptron is a single layer feed-forward neural network. It is not an auto-associative network because it has no feedback and is not a multiple layer neural network because the pre-processing stage is not made of neurons.**

3. An auto-associative network is:  
a) a neural network that contains no loops  
**b) a neural network that contains feedback**  
c) a neural network that has only one loop  
d) a single layer feed-forward neural network with pre-processing  
View Answer

Answer: b  
Explanation: An auto-associative network is equivalent to a neural network that contains feedback. The number of feedback paths(loops) does not have to be one.

**4. A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 4, 10, 5 and 20 respectively. The output will be:  
a) 238  
b) 76  
c) 119  
d) 123  
View Answer**

**Answer: a  
Explanation: The output is found by multiplying the weights with their respective inputs, summing the results and multiplying with the transfer function. Therefore:  
Output = 2 \* (1\*4 + 2\*10 + 3\*5 + 4\*20) = 238.**

5. Which of the following is true?  
**(i) On average, neural networks have higher computational rates than conventional computers.**  
(ii) Neural networks learn by example.  
(iii) Neural networks mimic the way the human brain works.  
a) All of the mentioned are true  
b) (ii) and (iii) are true  
c) (i), (ii) and (iii) are true  
d) None of the mentioned  
View Answer

**Answer: a  
Explanation: Neural networks have higher computational rates than conventional computers because a lot of the operation is done in parallel. That is not the case when the neural network is simulated on a computer. The idea behind neural nets is based on the way the human brain works. Neural nets cannot be programmed, they cam only learn by examples.**

6. Which of the following is true for neural networks?  
(i) The training time depends on the size of the network.  
(ii) Neural networks can be simulated on a conventional computer.  
(iii) Artificial neurons are identical in operation to biological ones.  
a) All of the mentioned  
b) (ii) is true  
**c) (i) and (ii) are true**d) None of the mentioned  
View Answer

**Answer: c  
Explanation: The training time depends on the size of the network; the number of neuron is greater and therefore the number of possible ‘states’ is increased. Neural networks can be simulated on a conventional computer but the main advantage of neural networks – parallel execution – is lost. Artificial neurons are not identical in operation to the biological ones.**

7. What are the advantages of neural networks over conventional computers?  
(i) They have the ability to learn by example  
(ii) They are more fault tolerant  
(iii)They are more suited for real time operation due to their high ‘computational’ rates  
a) (i) and (ii) are true  
b) (i) and (iii) are true  
c) Only (i)  
**d) All of the mentioned  
View Answer**

**Answer: d  
Explanation: Neural networks learn by example. They are more fault tolerant because they are always able to respond and small changes in input do not normally cause a change in output. Because of their parallel architecture, high computational rates are achieved.**

8. Which of the following is true?  
Single layer associative neural networks do not have the ability to:  
(i) perform pattern recognition  
(ii) find the parity of a picture  
(iii)determine whether two or more shapes in a picture are connected or not  
a) (ii) and (iii) are true  
b) (ii) is true  
c) All of the mentioned  
d) None of the mentioned  
**View Answer**

**Answer: a  
Explanation: Pattern recognition is what single layer neural networks are best at but they don’t have the ability to find the parity of a picture or to determine whether two shapes are connected or not.**

9. Which is true for neural networks?  
a) It has set of nodes and connections  
b) Each node computes it’s weighted input  
c) Node could be in excited state or non-excited state  
**d) All of the mentioned  
View Answer**

**Answer: d  
Explanation: All mentioned are the characteristics of neural network.**

10. Neuro software is:  
a) A software used to analyze neurons  
**b) It is powerful and easy neural network**c) Designed to aid experts in real world  
d) It is software used by Neuro surgeon  
View Answer

Answer: b  
Explanation: None.