Subject Code: MDS 6304

Subject Name: Deep Learning Principles and Applications

Segment 4: Deep Neural Network

1. The number of hidden layers in a 5-layer neural network is
2. 6
3. 5
4. 4
5. 3

Correct Answer:

1. What does  represent in a 6-layer deep neural network (layer indexing starts from 0 and node indexing starts from 1)?
2. The raw score calculated by the 3rd neuron in hidden layer 5
3. The raw score calculated by the 5th neuron in hidden layer 3
4. The raw score calculated by the 5th neuron in hidden layer 2
5. The raw score calculated by the 4th neuron in hidden layer 5

Correct Answer:

1. In a 3-layer neural network with , the shape of the matrix  is
2. 8 x 11
3. 11 x 8
4. 10 x 8
5. 8 x 10

Correct Answer:

1. When running a batch of size 32 through an L-layer deep neural network, where each sample could possibly belong to one of 3 output categories, the shape of the raw scores matrix  is
2. 3 x 32
3. 32 x 3
4. 32 x 32
5. 3 x 3

Correct Answer:

1. A 2-layer neural network with 5 neurons in each layer has a total of \_\_ parameters (i.e. weights and biases).
2. 59
3. 60
4. 61
5. 62

Correct Answer:

1. Which one of the following is the correct categorical cross-entropy loss expression for a sample with correct one-hot encoded output label vector  when using a 5-layer neural network?
2. 
3. 
4. 
5. 

Correct Answer:

1. The gradient flowing backward from the output direction through an activation layer with layer index 3 of a deep neural network is
2. 
3. 
4. 
5. 

Correct Answer:

1. The local gradient of an activation layer with layer index 3 of a deep neural network is
2. 
3. 
4. 
5. 

Correct Answer:

1. The local gradient of an activation layer (ReLU) with layer index 3 of a deep neural network with  is
2. 
3. 
4. 
5. 

Correct Answer:

1. In a 2-layer neural network with 5 neurons in each layer, the shape of the gradient  (local weight gradient of dense layer 1) is
2. 5 x 6 x 5
3. 6 x 5 x 5
4. 5 x 5 x 6
5. 6 x 6 x 5

Correct Answer: