1. (True/False) In Keras, the Dropout layer has an argument called rate, which is a probability that represents how often we want to invoke the layer in the training. 1 / 1 point

- ○ True
- ◉ False

✓ Correct
Correct!

2. What is a benefit of applying transfer learning to neural networks? 1 / 1 point

- ◉ Save early layers for generalization before re-training later layers for specific applications.
- ○ Easily adjust weights of early layers to reduce training time.
- ○ Train early layers for specific applications and generalize that with later pre-trained layers.
- ○ Place heavy focus on training layers that generalize the model.

✓ Correct
Correct! Transfer learning enables us to use later layers to fine-tune for a specific task and freeze the early layers that usually take a long time to train. For more information, please review the video Transfer Learning - Part 1.

3. By setting ` layer.trainable = False` for certain layers in a neural network, we____ 1 / 1 point

- ○ exclude the layers during training because they should be discarded
- ○ set the layers' weights to zero
- ◉ freeze the layers such that their weights don't update during training.
- ○ freeze the layers such thattheir weights change synchronously during training.

✓ Correct
Correct! This corresponds to the purpose of transfer learning – to implement pre-trained layers whose weights don't need to be updated. For more information, please review Transfer Learning Demo (Activity).

4. Which option correctly orders the steps of implementing transfer learning? 1 / 1 point

1. Freeze the early layers of the pre-trained model.
2. Improve the model by fine-tuning.
3. Train the model with a new output layer in place.
4. Select a pre-trained model as the base of our training.

- ○ 4, 2, 3, 1
- ○ 3, 2, 4, 1
- ◉ 4, 1, 3, 2
- ○ 3, 1, 2, 4

Correct
Correct! The idea of transfer learning is to add the layers with pre-trained weights first, freeze them, and train the later layers for a specialized purpose. For more information, please review Transfer Learning Demo (Activity).

5. Given a 100x100 pixels RGB image, there are _____ features. 1 / 1 point

- (●) 30000
- ( ) 300
- ( ) 10000
- ( ) 100

Correct
Correct! There is one feature per pixel of each channel, so 100*100*3=30000.

6. Before a CNN is ready for classifying images, what layer must we add as the last? 1 / 1 point

- ( ) Flattening layer with the number of units corresponding to the number of classes
- (●) Dense layer with the number of units corresponding to the number of classes
- ( ) Dense layer with the number of units corresponding to (number of classes*input size)
- ( ) Flattening layer with the number of units corresponding to (number of classes*input size)

Correct
Correct! The Dense layer comes after the flattening layers, calculating the weighted average among the inputs, and applies an activation function. In the end, we get a probability for each unit in the last Dense layer, corresponding to each class.

7. In a CNN, the depth of a layer corresponds to the number of: 1 / 1 point

- ( ) input layers
- (●) filters applied
- ( ) channel-filter combinations
- ( ) color channels

Correct
Correct! Each separate filter has a separate channel in the output layer.