1. If I have a dataset which has images of dogs and cats of size 32x32. I need to predict the output image as a dog or a cat. Fill out the parameters that is used to build a simple ANN model
   Input layer should have _____ number of neurons
   Output layer should have _____ number of neurons
   ____ activation function is used in the output layer
   ____ will be the loss function

Ans:

ANN Model for Dog vs Cat Classification

- Input Layer: 3072 neurons (flattened 32×32 RGB image)
- Hidden Layer(s): Choose 1–2 layers with ReLU activation (e.g., 128–512 neurons each)
- Output Layer: 1 neuron with Sigmoid activation
- Loss Function: Binary Crossentropy

Explanation:

The artificial neural network (ANN) model takes images of size 32×32 pixels as input. For RGB images, each pixel has three color channels, so the input layer consists of 3072 neurons (32 × 32 × 3) to represent all pixel values. The network can include one or more hidden layers with a suitable number of neurons, typically using the ReLU activation function to introduce non-linearity. Since the task is binary classification—predicting whether the image is a dog or a cat—the output layer has a single neuron with a Sigmoid activation function, which outputs a probability value between 0 and 1. The model is trained using the binary crossentropy loss function, which is appropriate for binary classification problems, allowing the network to learn to distinguish between the two classes effectively.