Deep Learning Module – Question Bank - Batch 1

1. Multiple Choice Questions (MCQs) – 15 Questions

1. What is the basic unit of an Artificial Neural Network?
   a) Neuron
   b) Pixel
   c) Layer
   d) Weight
2. Which activation function is commonly used in hidden layers of a neural network?
   a) Linear
   b) ReLU
   c) Sigmoid
   d) Softmax
3. What is the role of bias in a neural network?
   a) It improves the learning rate
   b) It shifts the activation function
   c) It increases the number of layers
   d) It prevents overfitting
4. What does gradient descent do in neural networks?
   a) Reduces the loss function
   b) Increases model complexity
   c) Normalizes the dataset
   d) Prevents overfitting
5. Which parameter controls how much we adjust weights in gradient descent?
   a) Loss function
   b) Learning rate
   c) Epochs
   d) Number of neurons
6. What happens if the learning rate is too low?
   a) The model may take too long to converge
   b) The model will diverge
   c) The model will overfit
   d) The model will have high variance
7. What is the main advantage of CNNs over regular neural networks for image data?
   a) They require less training data
   b) They capture spatial hierarchies of features
   c) They use less computation
   d) They do not require activation functions

8. What is the function of the pooling layer in a CNN?
   a) To increase feature maps
   b) To reduce spatial size
   c) To perform classification
   d) To add more layers
9. What type of convolution is commonly used in object detection models?
   a) 1x1 Convolution
   b) Dilated Convolution
   c) Strided Convolution
   d) Depthwise Separable Convolution
10. What is Transfer Learning?
   a) Training a model from scratch
   b) Using a pre-trained model for a new task
   c) Transferring data between neural networks
   d) Using neural networks without training
11. Which of the following is a popular deep learning model used for Transfer Learning?
   a) SVM
   b) VGG16
   c) K-Nearest Neighbors
   d) XGBoost
12. What is a key requirement for training a face mask detection model?
   a) A dataset with labeled masked and unmasked faces
   b) A dataset with only unmasked faces
   c) A dataset of landscape images
   d) A dataset of animal faces
13. Which type of neural network is best suited for face mask detection?
   a) Recurrent Neural Network (RNN)
   b) Convolutional Neural Network (CNN)
   c) Multi-layer Perceptron (MLP)
   d) Radial Basis Function Network
14. Which of the following techniques can help improve the accuracy of a face mask detection model?
   a) Data Augmentation
   b) Increasing the number of pooling layers
   c) Reducing the dataset size
   d) Using Sigmoid activation for all layers
15. While evaluating a face mask detection model, which metric is most useful for handling imbalanced datasets?
   a) Accuracy
   b) Precision
   c) F1 Score
   d) Mean Squared Error