**Module 4**

**MCQ's**

**1) Which of the following is used to update the weights of a neural network during training?**

a) Back Propagation

b) Gradient Descent

c) Bias Variance Trade-Off

d) Performance Metrics

Answer: b) Gradient Descent

**2) Which of the following represents the number of times a machine learning model sees the entire training dataset?**

a) Training

b) Validation

c) Epochs

d) Testing

Answer: c) Epochs

**3) Which of the following is responsible for propagating the error back through the neural network during training?**

a) Bias Variance Trade-Off

b) Gradient Descent

c) Back Propagation

d) Performance Metrics

Answer: c) Back Propagation

**4) Which of the following refers to the trade-off between a model's ability to fit to the training data and its ability to generalize to new data?**

a) Bias Variance Trade-Off

b) Gradient Descent

c) Back Propagation

d) Performance Metrics

Answer: a) Bias Variance Trade-Off

**5) Which of the following is used to evaluate the performance of a machine learning model?**

a) Gradient Descent

b) Bias Variance Trade-Off

c) Performance Metrics

d) Back Propagation

Answer: c) Performance Metrics

**6) Which of the following is used to add a constant value to the output of a neuron in a neural network?**

a) Training

b) Epochs

c) Back Propagation

d) Bias

Answer: d) Bias

**7) What is the purpose of evaluating the output of a supervised learning algorithm?**

a) To train the model

b) To make predictions

c) To compare the outputs to the labels

d) To generate new data

Answer: c) To compare the outputs to the labels

**8) Which of the following performance metrics is used to measure how well a regression model fits the data?**

a) R-Square

b) Accuracy

c) F1-score

d) Precision

Answer: a) R-Square

**9) What is the purpose of determining the residual for each data point?**

a) To measure the performance of a regression model

b) To calculate the mean squared error

c) To determine the average of all square residuals

d) To obtain the root mean squared error

Answer: a) To measure the performance of a regression model

**10) What is the process of backpropagation?**

a) Forward pass followed by backward pass to adjust the weights

b) Backward pass followed by forward pass to adjust the weights

c) Forward pass followed by backward pass to generate new input values

d) Backward pass followed by forward pass to classify input data

Answer: b) Backward pass followed by forward pass to adjust the weights

**11) What is the role of the gradient descent in backpropagation?**

a) To determine the optimal weight values for the neural network

b) To generate new input values for the neural network

c) To classify input data into different categories

d) To compress the input data before feeding it into the network

Answer: a) To determine the optimal weight values for the neural network

**12) How does the network learn in reinforcement learning?**

a) By backpropagation of errors

b) By gradient descent based on weight values

c) By trial and error with feedback from the environment

d) By clustering of input data

Answer: c) By trial and error with feedback from the environment