Central University of Himachal Pradesh
Centre for Computational Biology and Bioinformatics
Fundamentals of Machine Learning

Code BIN468 II semester
End TERM Semester Exam MM: 60 Time: 2 hours

1. Section A (Objective type quesions one mark each), All questions in this section ar compulsory.

(i) What is the main goal of Gradient Descent?
a) Minimize the loss function
b) Maximize the accuracy
c) Reduce the feature dimensionality
d) Increase the model complexity

(ii) Which parameter of Gradient Descent determines the step size at each iteration?
a) Learning rate
b) Regularization parameter
c) Batch size
d) Momentum

(iii) What happens if the learning rate is set too high in Gradient Descent?
a) The algorithm converges faster
b) The algorithm may fail to converge
c) The algorithm becomes more robust to noise
d) The algorithm becomes less sensitive to initial values

(iv) Which of the following is NOT a variant of Gradient Descent?
a) Stochastic Gradient Descent (SGD)
b) Mini-Batch Gradient Descent
c) Normal Equation
d) Batch Gradient Descent

(v) In K-nearest Neighbor algorithm, the value of K represents:
a) The number of features
b) The number of training examples
c) The number of nearest neighbors to consider
d) The number of classes in the dataset

(vi) What is the key assumption of the K-nearest Neighbor algorithm?
a) Linearity of the data
b) Normality of the data
c) Independence of the predictors
d) Local similarity of data points

(vii) In linear regression, the relationship between the independent variable(s) and the dependent variable is modeled as:
a) Linear
b) Non-linear
c) Polynomial
d) Exponential

(viii) Define Artificial Learning

(ix) Define variance

(x) Define Eucledian Distance