

**MASTER OF SCIENCE (BIOINFORMATICS) (CBCS-2019 COURSE)**  
**M. Sc. (Bioinformatics) Sem-III : WINTER :- 2021**  
**SUBJECT: MACHINE LEARNING TECHNIQUES**

Day : Saturday  
Date 29-01-2022

W-21177-2021

Time : 02:00 PM-05:00 PM  
Max. Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SAME** answer book.

**SECTION-I**

- Q.1** Attempt any **FIVE** of the following: **(10)**
- a) Describe the advantages and disadvantages of ML.
  - b) Explain naive bayes classifier.
  - c) What is cross validation?
  - d) Explain hyperparameter tuning.
  - e) What are the most important python library?
  - f) What is supervised learning?
  - g) How does machine learning work?
- Q.2** Attempt any **TWO** of the following: **(10)**
- a) Explain random forest classifier?
  - b) Explain decision tree.
  - c) Differentiate between supervised and unsupervised learning.
- Q.3** Attempt any **TWO** of the following: **(10)**
- a) Explain logistic Regression.
  - b) Explain k nearest neighbors.
  - c) Describe in detail about ensemble model.

**SECTION-II**

- Q.4** Attempt any **FIVE** of the following: **(10)**
- a) Explain neural network model.
  - b) Describe fuzzy logic.
  - c) What is hidden markov model?
  - d) Explain singular value decomposition.
  - e) What is Scikit learn?
  - f) What is clustering?
  - g) Explain self-organizing maps.
- Q.5** Attempt any **TWO** of the following: **(10)**
- a) What is hierarchical clustering?
  - b) Explain simulated annealing.
  - c) Differentiate between Clustering and Association.
- Q.6** Attempt any **TWO** of the following: **(10)**
- a) Describe in detail about ant colony optimization.
  - b) Explain conjugate gradient.
  - c) What are the types of Unsupervised learning?