



# BRAINWARE UNIVERSITY

Term End Examination 2022

Programme – B.Sc.(IT)-AI-2020

Course Name – Advanced Machine Learning

Course Code - BAIC501

( Semester V )

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

## Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Express which of the following is not an example of ensemble method.
  - a) AdaBoost
  - b) Decision tree
  - c) Random Forest
  - d) Bootstrapping
- (ii) Select which of the following is an example of sequential ensemble model.
  - a) AdaBoost
  - b) Bootstrapping
  - c) Random Forest
  - d) All of these
- (iii) Determine the area of Machine Learning in which about taking suitable action to maximize reward in a particular situation.
  - a) Supervised learning
  - b) Unsupervised learning
  - c) Reinforcement learning
  - d) None of these
- (iv) Choose which Reinforcement is defined as when an event, occurs due to a particular behavior.
  - a) Negative
  - b) Positive
  - c) Neutral
  - d) None of these
- (v) Predict how many types of reinforcement are there.
  - a) 3
  - b) 2
  - c) 4
  - d) None of these
- (vi) Analyze which of the followings are most widely used metrics and tools to assess a classification model.
  - a) Confusion matrix
  - b) Cost-sensitive accuracy
  - c) Area under the ROC curve
  - d) All of these
- (vii) Infer the average squared difference between classifier predicted output and actual output.
  - a) Mean relative error
  - b) Mean squared error
  - c) Mean absolute error
  - d) Root mean squared error
- (viii) Predict which of the following cases will K-means clustering fail to give good results. 1. Data points with outliers 2. Data points with different densities 3. Data points with nonconvex shapes

- a) 1 & 2  
c) 2 & 3
- b) 1, 2, & 3  
d) 1 & 3
- (ix) Choose the successful applications of ML  
a) Learning to recognize spoken words  
c) Learning to classify new astronomical structures
- b) Learning to drive an autonomous vehicle  
d) All of these
- (x) Express number of terms required for building a bayes model  
a) 1  
c) 3
- b) 2  
d) 4
- (xi) Express the output of training process in machine learning.  
a) Null  
c) Machine learning model
- b) Accuracy  
d) Machine learning algorithm
- (xii) Define is Machine Learning  
a) The autonomous acquisition of knowledge through the use of manual programs  
c) The selective acquisition of knowledge through the use of manual programs
- b) The selective acquisition of knowledge through the use of computer programs  
d) The autonomous acquisition of knowledge through the use of computer programs
- (xiii) Identify is FALSE regarding regression  
a) It may be used for interpretation  
c) It discovers causal relationships
- b) It is used for prediction  
d) It relates inputs to outputs
- (xiv) Identify which of the factors affect the performance of the learner system does not include?  
a) Good data structures  
c) Training scenario
- b) Representation scheme used  
d) Types of feedback
- (xv) Express which of the following is/are true about ensemble methods.  
a) Ensemble methods can take the form of using different classifiers  
c) For the data from linear process, ensemble methods performs better than the linear models
- b) Ensemble methods are simple  
d) Ensemble methods are cheap

### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Conclude whether logistic regression can be used for more than 2 classes or not. (3)
3. Propose the operation of Tensor Flow. (3)
4. Determine PCA and its use. (3)
5. Explain SVM Algorithm in Detail (3)
6. Describe the need of Machine Learning? (3)

OR

Discuss different types of Machine Learning algorithms. (3)

### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Illustrate some approaches or algorithms you know in to solve a problem in Reinforcement Learning. (5)
8. Illustrate the three stages of building a model in Machine Learning. (5)
9. Justify the performance parameter that can be calculated using confusion matrix. (5)
10. Define Machine learning? (5)
11. Illustrate how Ensemble Methods are used with Deep Neural Networks. (5)
12. Differentiate False Positive and False Negative and conclude how are they significant. (5)

OR

Explain F1 score with an example. (5)

\*\*\*\*\*