

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION DECEMBER 2022
(Third Semester)
Branch - COMPUTER SCIENCE

MACHINE LEARNING

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 Identify the kind of learning algorithm for "facial identities for facial expressions".
(i) Prediction (ii) Recognizing pattern
(iii) Recognizing anomalies (iv) Generating pattern
- 2 A _____ is a hierarchical data structure implementing the divide-and-conquer strategy.
(i) Binary tree (ii) Binary search tree
(iii) Hashing (iv) Decision tree
- 3 An _____ clustering algorithm starts with N groups, each initially containing one training instance, merging similar groups to form larger groups, until there is a single one.
(i) Agglomerative (ii) Divisive
(iii) Single-link (iv) Partitioned
- 4 _____ learning is all about making decisions sequentially.
(i) Supervised (ii) Markov
(iii) Unsupervised (iv) Reinforcement
- 5 To generate multiple samples from a single sample, an alternative to cross-validation is the _____ that generates new samples by drawing instances from the original sample with replacement.
(i) Learning (ii) Interval estimation
(iii) Bootstrap (iv) Hypothesis testing

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a What is the importance of Machine Learning?
OR
b Write a note on Regression.
- 7 a What is Losses and Risks?
OR
b What is decision tree? Brief the role of decision tree in machine learning.
- 8 a How to choose number of cluster?
OR
b Write an example of a left-to-right HMM.
- 9 a Write a note on Reinforcement learning.
OR
b Write a noted on Cascading. Error-Correcting output codes.
- 10 a Write a noted on Hypothesis testing.
OR
b What is Cross validation? Brief.

Cont...

SECTION -C (30 Marks)

Answer ALL questions
ALL questions carry EQUAL Marks

(5 x 6 = 30)

11 a. Explain the role of Classification in Machine learning.

OR

b. Explain the Learning a Class from Examples.

12 a. Explain the Association rule.

OR

b. Illustrate the Regression tree construction with example.

13 a. Explain the Expectation-Maximization Algorithm.

OR

b. Write an example for Markov model with three states and brief.

14 a. Explain the Model based learning.

OR

b. Write the AdaBoost algorithm and explain.

15 a. What is ANOVA? How to use the ANOVA?

OR

b. Write a note on Multivariate test.

Z-Z-Z

END