PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Sixth Semester)

Branch – COMPUTER SCIENCE

MACHINE LEARNING

Time: Three Hours   Maximum: 75 Marks

SECTION-A (10 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (10 x 1 = 10)

1. If machine learning model output involves target variable then that model is called as
   (i) Descriptive model   (ii) Predictive model
   (iii) Reinforcement learning   (iv) All of the above

2. Which of the following is the best machine learning method?
   (i)Scalable   (ii) Accuracy   (iii) Fast   (iv) All of the above

3. Which of the followings are most widely used metrics and tools to asses a classificationmodel?
   (i) Confusion Matrix   (ii) Cost-Sensitive Accuracy
   (iii) Area under the ROC curve   (iv) All of the above

4. _____is a tool which is used to reduce the dimension of the data.
   (i))Principal Components analysis   (ii)Product Components analysis
   (iii) Principle Components analysis   (iv)Pre Complex analysis

5. Which of the following is a disadvantage of non-parametric machine learning algorithms?
   i) Capable of fitting a large number of functional forms
   ii) Very fast to learn
   iii) More of a risk to over fit the training data
   iv) They do not require much training data

6. Suppose we have a regularized linear regression model. What is the effect of increasing λ on bias and variance?
   i) Increases bias, increases variance
   ii) Increases bias, decreases variance
   iii) Decreases bias, increases variance
   iv) Decreases bias, decreases variance

7. The predictions for generative learning algorithms are made using____.
   i) Naive Theorem   (ii) Bayes Theorem
   (iii) Naive Bayes Theorem   (iv) None of these

8. Which algorithm is used for solving temporal probabilistic reasoning?
   (i) Hill-Climbing search   (ii) Hidden Markov model
   (iii) Depth-First search   (iv) Breadth-First search

9. The basic principles of experimental design are
   (i) Randomization, Repetition, Blocking
   (ii) Repetition, Randomization, Factorization
   (iii)Replication, Blocking, Randomization
   (iv) Optimization, Blocking, Factorization

10. Point out the wrong combination.
    (i)True negative=correctly rejected   (ii) False negative=correctly rejected
    (iii) False positive=correctly identified (iv) All of the mentioned

SECTION - B (25 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 5 = 25)

11. a) Discuss Utility Theory.

(OR)

b) Explain Baye's Estimator.

12. a) Illustrate parameter Estimation.

(OR)

b) Justify the factor Analysis Concept.

13. a) Classify the methods in Non Parametric Classification.

(OR)

b) Discuss Gradient Descent Method.

14. a) Sketch the parameters of a Bayesian Estimation.

(OR)

b) Explain Discrete Marker Process.

15. a) Illustrate Randomization.

(OR)

b) Discuss Hypothesis Testing.

SECTION -C (40 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 8 = 40)

16. a) Elucidate Bernoulli and Gaussian Density.

(OR)

b) Determine Tuning Model Complexity.

17. a) Discuss Parameter Estimation

(OR)

b) Enumerate Local Linear Embedding.

18. a) Discuss the Techniques used to Estimate Non Parametric Density.

(OR)

b) Assess Logistic Discrimination.

19. a) Justify Gaussian Processes.

(OR)

b) Categorize the three basic problems of HMMS.

20. a) Determine the strategies of Experimentation.

(OR)

b) Explain the different types of test methods for Assessing a Classification

Algorithmperformance.

Z-Z-Z   END