

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2023.

Fourth Semester

Computer Science – Allied

MACHINE LEARNING

(For those who joined in July 2020 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer:

1. Machine Learning is a field of AI consisting of learning algorithms that \_\_\_\_\_.
  - (a) At executing some task
  - (b) Overtime with experience
  - (c) Improve their performance
  - (d) All of the above

6. \_\_\_\_\_ terms are required for building a Bayes Model.
  - (a) 1
  - (b) 2
  - (c) 3
  - (d) 4
7. Bayes rule can be used for \_\_\_\_\_.
  - (a) Solving queries
  - (b) Increasing complexity
  - (c) Answering probabilistic query
  - (d) Decreasing complexity
8. How do you handle missing or corrupted data in a dataset?
  - (a) Drop missing rows or columns
  - (b) Replace missing values with mean/median/mode.
  - (c) Assign a unique category to missing values
  - (d) All of the above
9. Common classes of problems in machine learning is \_\_\_\_\_.
  - (a) Clustering
  - (b) Regression
  - (c) Classification
  - (d) All of the above
10. Supervised learning and unsupervised clustering both require which is correct according to the statement?
  - (a) Output attribute
  - (b) Hidden attribute
  - (c) Input attribute
  - (d) Categorical attribute

2. Application of machine learning methods to large databases is called \_\_\_\_\_.
  - (a) data mining
  - (b) artificial intelligence
  - (c) big data computing
  - (d) internet of things
3. Which of the following is not a supervised learning?
  - (a) PCA
  - (b) Naive Bayesian
  - (c) Linear Regression
  - (d) Decision Tree
4. Which of the following is a not numerical function in the various function representation of machine learning?
  - (a) Neural Network
  - (b) Support Vector Machines
  - (c) Case-based
  - (d) Linear Regression
5. Which of the following is a disadvantage of decision trees?
  - (a) Decision trees are prone to be overfit
  - (b) Decision trees are robust to outliers
  - (c) Factor analysis
  - (d) Decision trees are rooted

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write down the foundations of artificial intelligence.
 

Or

 (b) Elaborate the main advantages of machine learning.
12. (a) Describe the concept of linear regression with example.
 

Or

 (b) How do you optimize gradient descent? Describe.
13. (a) What is difference between SVM and KNN? Explain.
 

Or

 (b) Write down the algorithm for K-Nearest Neighbors.
14. (a) What are the methods used in decision trees? Explain.
 

Or

 (b) Mention the application of Naive Bayes algorithms.

15. (a) Summarize the advantages of K-Means clustering algorithms.

Or

(b) Explain the concept of the machine learning and data science.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, by choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Discuss the need of machine learning in python.

Or

(b) Illustrate the python data visualization with Matplotlib.

17. (a) What are the similarities and differences between linear and logistic regression? Explain.

Or

(b) Outline the gradient descent optimization with diagram.

18. (a) Elaborate the training data used in support vector machines.

Or

(b) Summarize the benefits of K-Nearest Neighbor method in machine learning.

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19. (a) What are the Pros and Cons of using Naive Bayes algorithm? Explain.

Or

(b) Develop an algorithm for decision trees with example.

20. (a) Describe the python implementation of K-means clustering algorithm.

Or

(b) Explain in ethical and moral issues and challenges in machine learning.

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