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BCA/5th Sem/25(NEP)

2025

5th Semester Examination (CCFUP : NEP)

BCA

Paper : MJ 9-T (Single Core Major)

(Machine Learning)

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *five* questions : $2 \times 5 = 10$

1. State any two applications of Machine Learning.
2. What do you mean by supervised learning?
3. Define training set and validation set.
4. What do you mean by classification model?
5. Define clustering. Name any two clustering algorithms.
6. Define bias and variance.
7. What do you mean by accuracy of a Machine Learning model?

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(2)

8. What do you mean by overfitting in supervised learning?

Group - B

Answer any *four* questions : 5×4=20

9. Why is Python preferred for Machine Learning? Discuss the role of different essential Python libraries in Machine Learning. 2+3

10. Describe the major steps involved in preparing data for Machine Learning algorithms.

11. Explain the difference between classification and regression with suitable examples.

12. Explain the Naive Bayes classifier. State its assumptions and applications. 3+2

13. Explain the basic steps of k-Nearest Neighbour (k-NN) algorithm.

14. Discuss the limitations of K-means clustering.

Group - C

Answer any *one* question : 10×1=10

15. What is DBSCAN? Explain its working principle in detail. Compare DBSCAN with K-means. 2+5+3

16. Write short notes on any *two* : 5×2=10

(a) Feature Scaling and Data Transformation

(3)

(b) Decision Tree Algorithm

(c) Semi-Supervised Learning

(d) Challenges of Machine Learning

