

9. (a) Discuss the Bayesian Belief Networks in brief. **7.5**
- (b) Discuss the concept of radial based function network. **7.5**

Roll No.

Total Pages : 04

CMCS/M-24

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MACHINE LEARNING USING PYTHON

Paper : MS-20-42

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) What are the different ways to find string slices ?
(b) Enlist the various statistical functions in NumPy.
(c) What is random forest ?
(d) What is machine learning ?
(e) Comment on the significance of inductive bias.
(f) Differentiate between finite hypothesis and infinite hypothesis space. **6×2.5=15**

Unit I

2. Explain the purpose and use of the following modules in Python : **15**
- (i) os
(ii) glob

(iii) sys

(iv) re

(v) statistics.

3. (a) How user-defined exceptions are created in Python ? Explain by writing a program in Python which handles an exception if age entered greater than 60 or less than 21. **7.5**

(b) Write a program that uses a dictionary that contains ten user names and passwords. The program should ask the user to enter their user name and password. If the user name is not in the dictionary, the program should indicate that the person is not a valid user of the system. If the user name is in the dictionary, but the user does not enter the right password, the program should say that the password is invalid. If the password is correct, then the program should tell the user that they are now logged in to the system. **7.5**

Unit II

4. (a) What are the various data types in NumPy ? Explain using suitable examples. **7.5**

(b) Discuss the various types of plots you can draw in matplotlib using examples. **7.5**

5. (a) How can you clean, index and combine data sets using Pandas ? **7.5**

(b) How can you implement SVM for data analysis using Scikit learn ? Explain in brief. **7.5**

Unit III

6. (a) Discuss the various issues in machine learning in detail. **7.5**

(b) Write and explain Candidate-Elimination algorithm. **7.5**

7. (a) Describe the various issues in decision tree learning using appropriate examples. **7.5**

(b) How can you implement SVM for data analysis using Scikit learn ? Explain in brief. **7.5**

Unit IV

8. What is mistake-bound model for learning ? How can you find mistake-bound for various algorithms ? Explain. **15**