BAI 3401

S.No. : 119

No. of Printed Pages : 04

Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 33705 Roll No.

B. Tech. Examination 2021-22

(Even Semester)

CONCEPTS OF MACHINE LEARNING WITH PYTHON

Time : Three Hours] *[Maximum Marks : 60*

Note :– Attempt all question.

SECTION–A

1. Attempt all parts of the following : $1 \times 8 = 8$

   (a) What is machine learning? Define.

   (b) What are different types of machine learning?

   (c) Define list data type in python programming.

   (d) What is set data type in python programming?

   (e) What is indentation in python?

[P. T. O.

(f) Write down the name of 4 libraries that you have used in python implementation of machine learning.

(g) What will be the output of following python program ?

```
a=20
b=3
c=a/b
print (c)
```

(h) Write down the output of the following program:

```
a=3
a=a**2
print (a)
```

SECTION – B

2. Attempt any two parts of the following : $2 \times 6 = 12$

(a) What is linear regression? Write down python program for implementing the linear regression.

(b) What is logistic regression? How is it different from linear regression? Also explain about binomial multinomial and ordinal logistic regression.

BBD UNIVERSITY

(c) Explain the following with suitable example :

(i) Multi-class classification

(ii) Multi-label classification

(d) What is decision tree? Explain with a suitable example. Also explain attribute selection measures.

SECTION – C

Note:- Attempt any two parts from each question. Each question carry equal marks. $8 \times 5 = 40$

3. (a) What is neural network? Explain with a suitable diagram. Also explain activation functions.

(b) What is support vector machine? Define positive and negative hyper plane. Also define linear and non-linear SVM.

(c) Explain K-nearest neighbour algorithm. Write down the steps of algorithm. Define Euclidean distance. How can use select the value of K-NN algorithm?

4. (a) Explain the concept of the self organizing map. What is the competetive learning?

(b) What is principal component analysis(PCA)? Write down various steps to implement PCA.

(c) Write a note on the following :

(i) Naive Bayes Classifier

(ii) Bayerian belief network

5. (a) What is probably approximately correct learning? Explain in detail.

(b) What is perceptron? Explain multi-layer perceptron in detail.

(c) Explain the concept of VC dimension in detail.

6. (a) What is random forest? Explain the concept of bagging and boosting.

(b) What is Gaussian distribution? Explain the concept of Gaussian mixture model.

(c) What is the user defined function? Write a python program to calculate the factorial of a number using user defined function.

⌘⌘⌘