

2022

**Computer Science**

[HONOURS]

(CBCS)

**(B.Sc. Fifth Semester Practical End Examination-2022)**

**PAPER-DSE2P**

*Full Marks: 20*

*Time: 02 Hrs*

*The figures in the right hand margin indicate marks*

*Candidates are required to give their answers in their own words as far as practicable*

*Illustrate the answers wherever necessary*

**(Question will be selected on lottery basis) 1x15=15**  
**(Data sets will be supplied by examiners)**

1. Build an Artificial Neural Network by implementing the Back propagation algorithm and test the same using appropriate data sets.
2. Designing and building a Prediction Model for Heart\_failure\_clinical\_records\_dataset with a suitable Classifier to Predict death of a patients and Compute the accursey of classifier.
3. Write a program to implement the **any classifier** to find the species of a fish from a sample training data set stored as a Fish.

(2)

CSV file. Compute the accuracy of the classifier. **Generate the confusion matrix also.**

4. Write a program to implement the Naïve Bayes algorithm on mentioned dataset as below and calculate the confusion matrix and accuracy(Dataset: Social\_Network\_Ads.csv)
5. Write a program to implement linear regression to calculate the car price using the CarPrice\_Assisment.csv dataset
6. Write a program to implement XOR gate using Artificial Neural.
7. Perform the multiple linear regression for a fictitious economy, where the index\_price is the dependent variable, and the two independent / input variables are :

- Interest\_rate
- Unemployment\_rate

|    | Year | Month | Interest_rate | Unemployment_rate | Index_price |
|----|------|-------|---------------|-------------------|-------------|
| 0  | 2017 | 12    | 2.75          | 5.3               | 1464        |
| 1  | 2017 | 11    | 2.50          | 5.3               | 1394        |
| 2  | 2017 | 10    | 2.50          | 5.3               | 1357        |
| 3  | 2017 | 9     | 2.50          | 5.3               | 1293        |
| 4  | 2017 | 8     | 2.50          | 5.4               | 1256        |
| 5  | 2017 | 7     | 2.50          | 5.6               | 1254        |
| 6  | 2017 | 6     | 2.50          | 5.5               | 1234        |
| 7  | 2017 | 5     | 2.25          | 5.5               | 1195        |
| 8  | 2017 | 4     | 2.25          | 5.5               | 1159        |
| 9  | 2017 | 3     | 2.25          | 5.6               | 1167        |
| 10 | 2017 | 2     | 2.00          | 5.7               | 1130        |
| 11 | 2017 | 1     | 2.00          | 5.9               | 1075        |
| 12 | 2016 | 12    | 2.00          | 6.0               | 1047        |
| 13 | 2016 | 11    | 1.75          | 5.9               | 965         |
| 14 | 2016 | 10    | 1.75          | 5.8               | 943         |
| 15 | 2016 | 9     | 1.75          | 6.1               | 958         |
| 16 | 2016 | 8     | 1.75          | 6.2               | 971         |
| 17 | 2016 | 7     | 1.75          | 6.1               | 949         |

(3)

|    |      |   |      |     |     |
|----|------|---|------|-----|-----|
| 18 | 2016 | 6 | 1.75 | 6.1 | 884 |
| 19 | 2016 | 5 | 1.75 | 6.1 | 866 |
| 20 | 2016 | 4 | 1.75 | 5.9 | 876 |
| 21 | 2016 | 3 | 1.75 | 6.2 | 822 |
| 22 | 2016 | 2 | 1.75 | 6.2 | 704 |
| 23 | 2016 | 1 | 1.75 | 6.1 | 719 |

Plot the relationship between the index\_price and the unemployment rate and calculate the accuracy, R2 score.

8. The following data set contains factor that determine whether tennis is played or not. Using Naive Bayes classifier, find the play prediction for the day

<Sunny, Cool, High, Strong>

| DAY    | OUTLOOK  | TEMP | HUMIDITY | WIND   | PLAY |
|--------|----------|------|----------|--------|------|
| Day 1  | Sunny    | Hot  | High     | Weak   | No   |
| Day 2  | Sunny    | Hot  | High     | Strong | No   |
| Day 3  | Overcast | Hot  | High     | Weak   | Yes  |
| Day 4  | Rain     | Mild | High     | Weak   | Yes  |
| Day 5  | Rain     | Cool | Notmal   | Weak   | Yes  |
| Day 6  | Rain     | Cool | Notmal   | Strong | No   |
| Day 7  | Overcast | Cool | Notmal   | Strong | Yes  |
| Day 8  | Sunny    | Mild | High     | Weak   | No   |
| Day 9  | Sunny    | Cool | Notmal   | Weak   | Yes  |
| Day 10 | Rain     | Mild | Notmal   | Weak   | Yes  |
| Day 11 | Sunny    | Mild | Notmal   | Strong | Yes  |
| Day 12 | Overcast | Mild | High     | Strong | Yes  |
| Day 13 | Overcast | Hot  | Notmal   | Weak   | Yes  |
| Day 14 | Rain     | Mild | High     | Strong | No   |

VIVA – 03

PNB - 02