

A

00000MR402051903

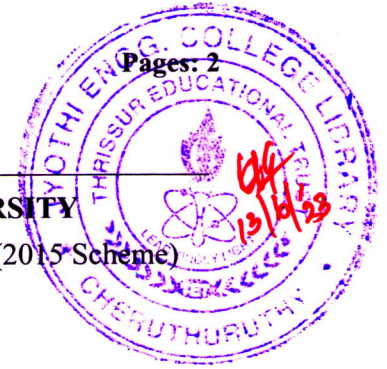
Pages: 2

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree (S, FE) Examination June 2023 (2015 Scheme)



Course Code: MR402

Course Name: Soft Computing Techniques

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

Marks

- | | | |
|---|---|-----|
| 1 | Explain the term:
a) membership function b) Support c) Core d) Normality e) Crossover points | (5) |
| 2 | Define Defuzzification and explain the terms: a) Centroid of Area b) Bisector of Area | (5) |
| 3 | Explain perceptron networking? | (5) |
| 4 | Describe the structure of RBFN network? | (5) |
| 5 | Explain about the neuro-fuzzy inference system? | (5) |
| 6 | Describe about Neuro fuzzy spectrum | (5) |
| 7 | Explain about the nearest neighbouring algorithm | (5) |
| 8 | How soft computing could be used for applications like colour recipe prediction? | (5) |

PART B

Answer any three full questions, each carries 10 marks.

- | | | |
|----|--|------|
| 9 | a) Explain the membership function in two dimension | (5) |
| | b) Define fuzzy reasoning. Explain it with the help of suitable examples | (5) |
| 10 | a) Illustrate with the help of diagram, Newton method used in optimization | (6) |
| | b) Write a note on gradient based methods | (4) |
| 11 | a) With the help of example, explain the various crossover techniques employed in genetic algorithm? | (10) |
| 12 | a) Describe the LVQ method used in learning? Write the algorithm used for learning | (10) |
| 13 | a) Illustrate with the help of diagram, the Mamdani model used in fuzzy logic | (10) |
| 14 | a) What are the different techniques used in derivative based optimization | (6) |
| | b) Explain the terms: a) Step Size b) direction vector | (4) |

PART C

Answer any two full questions, each carries 15 marks.

- 15 a) Compare the CANFIS and RBFN models with adequate diagrams (You may assume, the system has 2 output and four rules) . (10)
b) Discuss about the RBFN models used (5)
- 16 a) Discuss about how ANFIS could be used in predicting the automobile fuel efficiency? (15)
- 17 a) Describe the joint variables used in soft computing? (5)
b) Elaborate about the Kinematic chain in forward and inverse kinematic problem? (5)
c) Write a note on Denavit-Hartenberg convention in forward kinematic problem? (5)
