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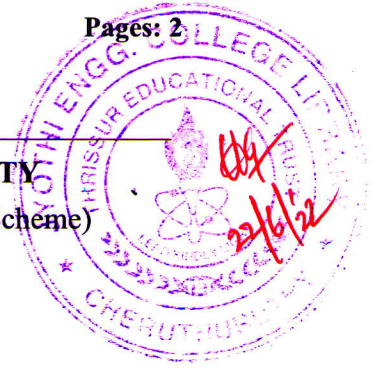
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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree Examination June 2022 (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 | Evaluate soft computing goals and advantages? | (5) |
| 2 | Draw and define Fuzzy Inference System (FIS) and its components? | (5) |
| 3 | Write notes on Derivative free optimization methods? | (5) |
| 4 | Write the working of Learning Vector Quantization? | (5) |
| 5 | Explain classification of Neuro-Fuzzy Hybrid Systems? | (5) |
| 6 | Analyze the advantages of using Adaptive systems in Soft computing | (5) |
| 7 | Explain how colour recipe prediction is proposed by applying Genetic Algorithms? | (5) |
| 8 | Compare the forward and inverse kinetic problems? | (5) |

PART B

Answer any three full questions, each carries 10 marks.

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|----|---|------|
| 9 | a) Define Fuzzy set and compare with Classical set? | (4) |
| | b) Discuss Properties of Fuzzy set? | (3) |
| | c) Describe fuzzy set Operations? | (3) |
| 10 | a) Discuss the three core methodologies of soft Computing? | (5) |
| | b) Write on Artificial Neural Networks and how do neural networks differ from conventional computing? | (5) |
| 11 | a) Evaluate Mamdani FIS and Sugeno FIS Models? Discuss advantages of two methods? | (10) |
| 12 | a) Explain the characteristics of Perceptron Networks and architecture? | (5) |
| | b) Write Perceptron training Algorithm for single output classes with help of flowchart? | (5) |
| 13 | a) What are the Crossover technique used in Genetic Algorithms and Explain with Examples? | (10) |

- 14 Define and Discuss the following unsupervised learning networks in detail?
- a) Fixed Weight Competitive Nets (5)
 - b) Kohonen self-Organising feature maps. (5)

PART C

Answer any two full questions, each carries 15 marks.

- 15 a) Discuss the characteristics of Neuro-Fuzzy Hybrid systems? (5)
- b) Illustrate about the learning methods that cross fertilize ANFIS and RBFN methods? (10)
- 16 a) Investigate about the Neuro fuzzy spectrum? (5)
- b) Describe CANFIS and ANFIS system working models with examples? (10)
- 17 a) Analyse ANFIS Application based on nonlinear regression: Automobile MPG Prediction? (7)
- b) Soft computing CANFIS with Five colour rule for colour recipe Prediction? (8)
