RM19002026

Registration No:

Total Number of Pages : 2   **M.TECH**
M.TECH 2ND SEMESTER (AR 18) REGULAR EXAMINATIONS, APRIL/MAY 2019
SOFT COMPUTING
Branch: CSE, Subject Code:MCSPC2020

Time: 3 Hours   **Max Marks : 70**

PART-A   **(10 X 2=20 MARKS)**

1. Answer the following questions.

a.   Differentiate between Hard computing and Soft Computing.

b.   How does an ANN differs from Biological Neuron?

c.   Differentiate between Crisp Set & Fuzzy Set.

d.   State two merits of an ART net.

e.   What is fitness function in Genetic algorithms?

f.   State different learning methods of ANN.

g.   How do deep learning models learn?

h.   What is a gradient descent?

i.   Define Stability and plasticity.

j.   What is difference between list and tuple with suitable example in python.

PART-B   **(5 X 10=50 MARKS)**

Answer any five questions from the following.

Q2.   [5]

a.   Two fuzzy sets are given as:
            A = {0.3/2, 0.6/3, 0.7/4, 1/5, 0.8/6, 0.6/7, 0.4/8}
            B = {0.5/2, 0.9/4, 1/5, 0.6/7}
        Find the following operation on the given 2 fuzzy sets.
        (i)   Difference   (ii)   Intersection   (iii)   Union

b.   Two fuzzy relations are given as   [5]

$$R_1 = \begin{bmatrix} 0.3 & 0.0 & 0.7 & 0.3 \\ 0.0 & 1.0 & 0.2 & 0.1 \end{bmatrix}$$

$$R_2 = \begin{bmatrix} 1.0 & 0.0 & 1.0 \\ 0.0 & 0.5 & 0.4 \\ 0.7 & 0.9 & 0.6 \\ 0.0 & 0.0 & 0.0 \end{bmatrix}$$

Find: Max-min Composition and Max-prod Composition

Q3.
a.   Outline the similarities and differences between Genetic Algorithms and Evolutionary Strategies.
b.   What is perception? Write down the perception training algorithm.

[5]

[5]

Q4.   What is feed forward learning? How the computations are performed at the different layer of Multi
layer neural network?

Q5.

[10]

a.   Compare and contrast traditional algorithms. and genetic algorithms.

[5]

b.   consider the following two parents selected for crossover.
Parents 1: [1 1 0 1 1 0 0 1 0 0 1 1 0 1 1 0]
Parents 2: [1 1 0 1 1 1 1 0 0 0 0 1 1 1 1 0]
Explain how to implement one point crossover, two point crossovers, and Uniform crossover

[5]

Q6.
a.   Find the union of two fuzzy set defined by the triangle (x; 10, 40, 60) and (x; 10, 40, 60)
b.   What are the different types of crossover operation used in GA.

[5]

Q7.

[5]

a.   What is the difference between Deep Learning and Machine Learning?
b.   Do we need a lot of data to train deep learning models? If yes why?

[5]

[5]

Q8. Write short notes on
a.   Write the python code to complement to a fuzzy set.
b.   Explain any one fuzzy logic toolbox.

[5]

[5]

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