



PAPER ID-410933

Printed Page: 1 of 1
Subject Code: KCS056

Roll No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**B.TECH
(SEM V) THEORY EXAMINATION 2021-22
APPLICATION OF SOFT COMPUTING**

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions.

2X10=20

- Define Soft Computing. How is it different from conventional computing?
- What is difference between auto associative memory and hetero associative Memory?
- Write down the applications of genetic algorithm.
- What is a self organizing map?
- What is a membership function in a fuzzy set?
- If $\underline{A} = \{1/1, 0.7/1.5, 0.2/2, 0.6/2.5\}$ and $\underline{B} = \{0.2/1, 0.3/1.5, 0.7/2, 0.1/2.5\}$ find the Algebraic sum of the given fuzzy sets.
- What are the basic components of ANN?
- What is meant by threshold logic unit?
- Why do we use bias function in neural network?
- What is Adaptive learning?

SECTION B

2. Attempt any three parts of the following:

10X3=30

- How crossover used in a GA? Explain the types of crossover with example.
- How is weight adjustment done in back propagation network?
- What is Defuzzification? Explain all the three methods which are used in Defuzzification with an example?
- What is Multilayer perceptron? How is different from single layer perceptron?
- Discuss neuro fuzzy system and rule base structure identification in detail.

SECTION C

3. Attempt any one part of the following:

10X1=10

- How back propagation network works in ANN? Write an algorithm for it.
- Explain supervised and unsupervised learning in detail.

4. Attempt any one part of the following:

10X1=10

- Why perceptron is not able to handle the tasks which are not linearly separable? Justify your answer using XOR Problem.
- Write a short notes on the following:
 - Feedback control system
 - Fuzzy Automata

5. Attempt any one part of the following:

10X1=10

- Explain the architecture of Kohonen self organizing network.
- Explain Fuzzy Inference System with all its components in detail.

6. Attempt any one part of the following:

10X1=10

- How can Fitness functions be found for any optimization problem? Maximize the function $f(x)=x^2$, with x in the integer interval $[0,31)$ with the help of Genetic Algorithm.
- What is Genetic Algorithm? Discuss the working of Genetic Algorithm with the help of flowchart.

7. Attempt any one part of the following:

10X1=10

- What are fuzzy sets? Discuss the various properties of fuzzy sets?
- Write short note on the following:
 - Fuzzy Controllers
 - Fuzzy and Crisp relations