LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – COMPUTER SCIENCE

SECONDSEMESTER – APRIL 2018

17PCS2ES01- SOFT COMPUTING

Date: 25-04-2018   Dept. No.   Max. : 100 Marks
Time: 01:00-04:00

PART A(10x2=20 marks)

Answer all the questions:

1. Define Soft Computing.

2. Write the difference between hard computing and soft computing.

3. Define Fuzzy Sets.

4. Define classical relations and fuzzy relations.

5. Write any two applications of Genetic Algorithm.

6. How GA differs from other optimization techniques?

7. Define Genetic Programming.

8. Give any two examples for soft computing based Hybrid Fuzzy Controllers.

9. Define Cyclic Crossover with example.

10. What is Prisoner's Dilemma?.

PART B (5x8=40 marks)

Answer all the questions:

11 a).What are the classifications of Hybrid Systems.

OR

b) Explain various terminologies related with Artificial Neural Networks.

12. a) Give examples for fuzzy matrix and fuzzy graph.

OR

b) Define Cartesian product. Find the Cartesian product of the following fuzzy sets.

$$A=\{0.3/x1 + 0.7/x2 + 1/x3\}$$

$$B=\{0.4/y1 + 0.9/y2\}$$

13. a) Compare the mathematical model of Artificial neuron with biological neuron.

OR

 b). Explain simple form of genetic algorithm with flowchart.

14 a). Write short notes on Image Fusion.

OR

 b). How genetic algorithm give optimized solution in Travelling Salesman Problem?.

15 a). Write a C program to verify the various laws associated with fuzzy sets.

OR

 b). Write the steps for solving quadratic equation using genetic algorithm approach.

PART C (2x20=40 marks)

Answer any two questions:

16. a) Explain various models of Artificial Neural Networks.

    b) Define fuzzification. List the various methods available for membership value assignment.

17. a) What are the various types of operators used in Genetic Algorithms?.

    b) Explain any two classifications of Genetic Algorithm.

18.a) Explain Genetic Algorithm based Internet search technique in detail.

    b) Write a C program to implement any two operations of fuzzy sets.