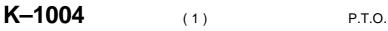**K–1004**

MCS–E2

MCA IIIrd Semester Examination Dec., 2023

INTRODUCTION TO SOFT COMPUTING

Time : 2 Hours] [**Max. Marks :** 70

Note **:–** This paper is of Seventy (70) marks divided into two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given there in. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.***

Section–A

(Long Answer Type Questions)   2×19=38

Note **:–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Define soft computing. What are the major areas of soft computing ? Explain in details with example.

2. Define Defuzzification. Explain different defuzzification methods in details.

3. Define fuzzy logic and explain its importance in our daily life. Explain the role of crisp sets in fuzzy logic with example.

4. Draw and explain the flow chart of genetic algorithm. Explain the generational cycle in GA with example.

5. Describe back propagation and performance of back propagation learning. Explain, what are the limitations of back propagation learning ?

Section–B

(Short Answer Type Questions) 4×8=32

Note **:–** Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. What is meant by implication ? What is the role of membership function in fuzzy logic ?

2. What is fuzzy inferences explain with example.

4. What is GA ? Describe GA operators.

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5. Explain the various ways by which membership values can be assigned to fuzzy variables

6. Define fuzzy logic control system. Explain the importance of fuzzy logic control in various fields.

7. Explain with suitable diagram how the ANN can be used for process identification.

8. Explain following in short :

   (a) EC-I and EC-II

   (b) MOEA Approaches: Non-Pareto and Pareto-I

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