

Name/Title of Paper- soft computing

Time : Three Hours]

[Maximum Marks : 80

[Minimum Pass Marks : 29

नोट : दोनों खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं।

Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

Section-A

1- Choose the correct answer from the following:

1X10

- (a) Unsupervised learning is.
- Learning without computers.
 - Problem Based learning.
 - Learning from teachers.
- (b) Fuzzy logic is a form of
- Two-valued logic
 - Crisp set logic
 - Many-valued logic
 - Binary set logic
- (c) In feed forward ANN information flow is
- Unidirectional
 - Bidirectional
 - Multidirectional
 - All of these
- (d) Artificial neural network word for:
- Pattern Recognition
 - Classification
 - Clustering
 - All of these
- (e) Fuzzy logic is extension of crisp set with an extension of handling the concept of partial truth-
- True
 - False
- (f) Which of the following is not a part of fuzzy logic systems architecture?
- Fuzzification module
 - Knowledge base
 - Defuzzification module
 - Interference base
- (g) Genetic algorithms are heuristic methods that do not guarantee an optimal solution to a problem.
- True
 - False
- (h) The membership functions are generally represented in
- Tabular form
 - Graphical form
 - Mathematical form
 - Logical form
- (i) What are the following sequence of steps taken in designing a fuzzy logic machine?
- Fuzzification → Rule evaluation → Defuzzification
 - Rule evaluation → Fuzzification → Defuzzification
 - Defuzzification → Rule evaluation → Fuzzification
 - Fuzzy Sets → Defuzzification → Rule evaluation
- (j) ----- is the way to represent uncertainty
- Fuzzy Logic
 - Probability
 - Entropy
 - All of these

2- Answer the following questions:

2X5

- (a) What is soft computing?
- (b) Write the characteristics of ANN.
- (c) Define membership function.
- (d) What is optimization?
- (e) Discuss about supervised learning.

Section-B

12X5

Answer all the question:

Unit-I

3- Compare different tools of soft computing in detail.

OR

Explain various area of application of soft computing.

Unit-II

4- What is learning process? Explain various types of learning in brief.

OR

Briefly explain about the Hopfield networks.

Unit-III

5- Explain the following components of fuzzy logic system:

- a. Fuzzification
- b. Rule base
- c. Defuzzification

OR

Explain the following:

- (a) Fuzzy Arithmetic
- (b) Crisp of fuzzy Relations.

Unit-IV

6- Explain about the basic operators and technologies in Genetic algorithm.

OR

Explain the following:

- a- Binary chromosome
- b- Crossover and mutation

Unit-V

7- Explain all Hybrid types of soft computing with suitable examples.

OR

Explain MATLAB and MATLAB API

(Application program interface). Write various plots and Graphs Related function of MATLAB.