CLASS:    M.TECH/PRE-PHD                                    SEMESTER : II/NA
BRANCH:   PRODUCTION                                        SESSION : SP/19

**SUBJECT: PE512 SOFT COMPUTATION IN MANUFACTURING AUTOMATION**
TIME:    3.00  HOURS                                        FULL MARKS: 50

**INSTRUCTIONS:**
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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| Q.1(a) | What are the major tools of soft computation? Discuss each briefly. | [5] |
| Q.1(b) | Discuss some applications of soft computing tools in engineering and medical fields. | [5] |
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| Q.2(a) | Give the equivalent biological reasons for assigning weights for each synaptic link between two neurons and use of transfer functions at some neurons. | [5] |
| Q.2(b) | What are the various NN training methods? Write the principle of back propagation training of a neural network. | [5] |
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| Q.3(a) | How to fuzzify a crisp value within given sets of membership functions? | [5] |
| Q.3(b) | Describe a fuzzy max-min composition relation and its practical application. | [5] |
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| Q.4(a) | Construct a flowchart for application of genetic algorithm and discuss it. | [5] |
| Q.4(b) | Discuss any two cross-over operators for permutation strings and give examples. | [5] |
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| Q.5(a) | Explain the different stopping criteria for genetic algorithm. | [5] |
| Q.5(b) | What are the various classes of hybridization of soft computing tools? Give example for each class of hybrid. | [5] |

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